

University of Cape Town

# **Adaptive vs. Visionary-Advocacy Approaches in Scenario Planning: Implications of Contrasting Purposes and Constraint Conditions**

---

**Adam Gordon (GRDADA002)**

Thesis presented for the degree of  
Doctor of Philosophy in Business Administration  
at the Graduate School of Business, Faculty of Commerce,  
University of Cape Town

February, 2013

**Supervisor:** Dr. Mills Soko  
(Graduate School of Business, University of Cape Town)

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

## DECLARATION

*I, Adam Gordon, hereby declare that the work on which this thesis is based is my original work, except where acknowledgements indicate otherwise.  
Neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.  
This thesis is presented in fulfilment of the requirements for the degree of Ph.D.  
I empower the University of Cape Town to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.*

*Adam Gordon, February 2013*

University of Cape Town

## ABSTRACT

Scenario planning has steadily grown to become a significant part of business and organisational foresight processes, particularly where planning situations demand approaches beyond traditional forecasting, due to extent of uncertainty variables or length of future time under consideration. However, despite general consensus as to the importance of the scenario approach in general, and rapid growth in both theory and practice in the field, fundamental questions remain over which situations are most tractable to scenario planning and why; and, in the face of uneven success in application, which among an apparent myriad scenario planning approaches best serves different planning situations, or organisations holding different goals. This dissertation makes an intervention into this problem, investigating to what extent scenario planning projects can be separated by underlying project purpose, and, based on original primary case studies and case-based structured interviews, finds that two meta-categories of purpose exist, which are here referred to as “adaptive” and “visionary-advocacy” purposes. It is argued that a purpose-based distinction of scenario modes provides part-explanation of the effective basis, or absence thereof, of scenario work for different situations—a basis which is achieved via congruence of scenario project purpose with (a) underlying organisational planning purpose, and (b) the extent of organisational influence over external conditions, including macro-variables of change, that constrain it. These findings suggest additions to scenario method as currently understood, particularly pre-project analysis (audits) of both an organisation’s planning purpose and its external constraint conditions, to ascertain the presence of absence of necessary congruencies, so as to inform adoption of the purpose platform (and allied methodology) more likely to produce successful outcomes in application.

This dissertation is dedicated to the memory of Professor  
Colin Firer, Graduate School of Business, University of Cape Town.

University of Cape Town

## ACKNOWLEDGEMENTS

No project of this magnitude is achieved without a considerable degree of support and guidance. I would like first to thank my supervisor, Dr Mills Soko, Associate Professor at the University of Cape Town School of Business, who has expertly led me through the dissertation process, and guided me as to the demands of research at this level in a most insightful and assured manner. I am also grateful to my primary teacher in strategic foresight, Dr Peter Bishop of the University of Houston, who was a sounding board at various stages of the project. I would also like to thank various other members of the business and organisational foresight community whom I consulted along the way, including: Dr Wendy Schultz, Dr Tamara Carleton, Andrew Curry, Anthony Hodgson, and Harden Tibbs, who are but the tip of the iceberg of the many people in the foresight community whom I have learned from, either directly during this project, or more generally during my time in the field.

I would like to note with gratitude the interviewees in this research, who are individually named in the document, all of whom gave exceptionally of their time, many over a number of sessions. At the risk of singling any out, I would like to thank Desiree Daniels of the Metropolitan Life Foundation (Cape Town) and Francesca Birks of Arup Foresight (New York) who were the primary respondents in the case study analyses, and who gave me exceptional access to workshop documents for analysis, and support thereto, in addition to their time before, during and after interview sessions. Further I would like to thank Tanja Hichert, Associate at the University of Stellenbosch Institute of Futures Research, who in addition to providing content for this dissertation has been a wellspring of insight, support and encouragement over many years; and also Dr Harry Dugmore, Professor of Journalism at Rhodes University, who not only provided interview content but also hours of exceptional background information and analysis on the

history of South African government scenario planning since transition, with which he has been closely involved.

During the course of research, parts of this dissertation were accepted for publication in academic journals, and I would like to thank the journal editors in this regard. Dr Ozcan Saritas, editor of *Foresight* (Emerald Group Publishing) patiently shepherded an early version of what became Chapter 4A here, through the academic review process. Further, I would be remiss if I did not mention Alan Glasspool of Emerald Group Publishing who was something of a magician in turning my ordinary case study graphics into publishable images, and I have therefore been able to use his improved images in this dissertation. Further in regard to publishing, I would like to thank Len Tashman, the Editor of the *Foresight*, International Institute of Forecasters (IIF), who was also instrumental in persuading me to turn key ideas from my book, *Future Savvy*, into two academic articles for publication; which helped me put key ideas into a form that allowed them to be marshalled here, particularly in Chapters 2 and 5. He also provided me the opportunity to give a paper on the fruits of my research for this dissertation at the International Institute of Forecasters 26<sup>th</sup> Annual Conference, held in Boston on June 27, 2012. The IIF also provided a travel stipend to me, to enable me to present this paper.

At the University of Cape Town School of Business, I owe a debt to the late Dr Colin Firer, who first encouraged me to embark on this Ph.D., as well as helping me navigate initial proposal and other foundational matters. I would like to thank Dr Ralph Hamann and Tamlyn Mawa of the GSB Research Office for various forms of assistance, including organising a number of research-presentation events that were extremely valuable in consolidating my research path. Further, I need to acknowledge Kate Hunter and the library staff: generally I found the GSB library to be everything it should be in that I was able to make seamless, consistent and heavy use of, particularly, the online periodicals databases and journals without a

hitch. I would like to thank Jill Stevenson who managed the administrative side of registration and reregistration with absolute finesse and professionalism.

Finally, I would like to thank my wife Helena and my children for enduring the many hours of my “tucked-awayness” while researching and writing up this study, all of which came on top of a fairly demanding travel and work schedule. Many bike rides and games of snakes & ladders are owed...

University of Cape Town



## TABLE OF CONTENTS

### **Chapter 1: Introduction and Research Methodology**

<b>1.1 Purpose and Significance of the Study</b>	<b>1</b>
<b>1.2 Definitions</b>	<b>2</b>
<b>1.3 Research Motivation</b>	<b>5</b>
<b>1.4 Statement of Objective</b>	<b>8</b>
<b>1.5 Research Question: Assumptions and Delimitations</b>	<b>9</b>
1.5.1 The Research Question	9
1.5.2 Use of a Research Question in Theory-Generating Enquiry	10
1.5.3 Research Assumptions and Delimitations	11
<b>1.6 Research Path: Chapter Outline</b>	<b>12</b>
<b>1.7 Research Methodology and Justification</b>	<b>13</b>
1.7.1 Structure of Research Section	14
1.7.2 Background to Research Methodology Decisions	14
1.7.2.1 Research Location	15
1.7.2.2 Special Skills of the Researcher	16
1.7.2.3 Practical Knowledge and Benefit	17
1.7.2.4 Going Beyond Existing Studies	18
1.7.2.5 Summative vs. Formative Analysis	18
1.7.3 Qualitative vs. Quantitative Research Approaches	20
1.7.3.1 Limits of Positivism	20
1.7.3.2 Interpretative Research Approaches	22
1.7.4 The Qualitative-Interpretive Research Basis Decision	23
1.7.4.1 Consideration of 'Mixed Methods'	25
1.7.5 Research Design	26
1.7.5.1 Choosing Among Qualitative Research Options	27
1.7.5.2 Sequential vs. Simultaneous Application of Methods	28
1.7.6 Case Studies	30
1.7.6.1 Types of Case Study	31
1.7.6.2 A Single Case Study vs. Multiple Cases	32
1.7.6.3 Choice of Case Study Subjects	33

1.7.6.4 Project-document Analysis	35
1.7.6.5 Hermeneutics of the Text	37
1.7.7 Interviews	37
1.7.7.1 Survey Method: Advantages and Disadvantages	37
1.7.7.2 Structured vs. Unstructured Interviews	40
1.7.7.3 Semi-structured Interviews	40
1.7.7.4 Choice of Interview Participants: Purposive Sampling	43
1.7.7.5 Number of Interviewees	46
1.7.7.6 Ethical Considerations	47
1.7.7.7 Rigour in Evaluating Interviews	48
1.7.7.8 Triangulation	50

## **Chapter 2: Theoretical Review**

<b>2.1 Overview</b>	52
<b>2.2 Purposes and Benefits of Scenarios</b>	54
2.2.1 Strategic Effectiveness and Decision Enhancement	55
2.2.1.1 The Limits of Quantitative Forecasting	55
2.2.1.2 Determinism and Irreducible Complexity	57
2.2.1.3 Overcoming Decision Failure	61
2.2.1.4 Promoting Strategic Robustness	63
2.2.2 Innovation: Stimulating New Ideas	64
2.2.2.1 Reification	65
2.2.2.2 Empowering Non-dominant Voices	66
2.2.3 Challenging Mental Models	67
2.2.3.1 Memories of the Future	68
2.2.4 Strategic Conversation and Organisational Learning	69
2.2.5 Aspirational Benefits	70
2.2.5.1 Aspiration as Social Critique	74
2.2.5.1 Aspirational Benefits in Context	75
<b>2.3 Criticism and Limits of Scenarios</b>	76
2.3.1 Overview Assessments	77
2.3.2 Client Adoption Issues	81
2.3.2.1 Qualitative Methods as Barrier to Adoption	82

2.3.2.2 Cost-Benefit Problems	84
2.3.3 Inter-practitioner Debates	85
2.3.3.1 Limits of the “2x2” method	87
<b>2.4 Scenario Planning Typologies</b>	88
2.4.1 Role of Typology in the Research	93
<b>2.5 Conclusion</b>	94

### **Chapter 3: History and Evolution of Scenario Planning**

<b>3.1 Overview</b>	95
<b>3.2 U.S. Origins of Scenario Planning</b>	96
3.2.1 Influence of Herman Kahn and the Rand Corporation	96
<b>3.3 European Origins of Scenario Planning</b>	98
<b>3.4 Early Experience of Royal Dutch Shell</b>	99
3.4.1 Purpose Implications of the Shell Method	102
<b>3.5 Global Adoption and Proliferation</b>	104
3.5.1 Enduring Influence of Royal Dutch Shell	105
<b>3.6 Scenario Planning in South Africa</b>	106
<b>3.7 Implications for the Research Project</b>	108

### **Chapter 4: Research Presentation**

#### **Part 1. 4A: Primary Case Studies**

<b>4.1 Introduction</b>	110
<b>4.2 Choosing the Case Studies</b>	111
4.2.1 Success Orientation	111
4.2.2 Location	112
4.2.3 Number of Studies	113
4.2.4 Limitations of the Case Method	113
<b>4.3 Scenario Case Study 1</b>	
4.3.1 Case Sources	114
4.3.2 Case Overview	115
4.3.2.1 Situational Context	115
4.3.2.2 The Client	116

4.3.3. Defined Purpose of the Scenario Project	116
4.3.4 Pre-Work and Event Setup	117
4.3.4.1 Local Experience: Learning Journeys	117
4.3.5 The Scenario Building Workshop	119
4.3.5.1. Scenario Matrix	120
4.3.6 The Scenarios	123
4.3.6.1 Salama Village	123
4.3.6.2 Nemba, a Private Island	125
4.3.6.3 Pangani	125
4.3.6.4 Chen-grila	126
<b>4.4 Scenario Case Study 2</b>	
4.4.1 Case Sources	128
4.4.2 Case Overview: Situational Context	128
4.4.3 Defined Purpose of Scenario Project	129
4.4.5 Pre-work and Event Setup	130
4.4.5.1 Meeting 1: Pre-session	131
4.4.5.2 Meeting 2: Stakeholder Meeting	132
4.4.5.3 Meeting 3: General Meeting	133
4.4.6 Scenario Matrix	133
4.4.6.1 Scenario 1: Autumn of Limited Opportunity	134
4.4.6.2 Scenario 2: Winter of Discontent	136
4.4.6.3. Scenario 3. Spring of Hope	138
4.4.6.4 Scenario 4: Summer for All People	140
4.4.7 Scenario-Based Data Projections	142
4.4.8 Project Publicity and Launch	144
4.4.8.1 Community Action	145
4.4.8.2 Live-the-Future Workshops	146
4.4.8.3 “Respond to the Challenge” Document	147
<b>4.5 Case Studies: Preliminary Analysis</b>	149
 <u>Part 2. 4B: Project-Based Structured Interviews</u>	
 <b>4.6 Overview</b>	152
<b>4.7 Selection of Projects and Respondents</b>	153

4.7.1 Selection of Projects	153
4.7.1.1 Document Study	154
4.7.1.2 Age Restriction of Projects Under Study	154
4.7.1.3 African Orientation	155
4.7.2 Scenario Method	155
4.7.3 Selecting the Interviewees	156
<b>4.8 Form of the Interview</b>	157
4.8.1 Interview Questions	157
4.8.2 Rationale of the Questions	158
<b>4.9 Interviews</b>	
4.9.1 Columbia Basin Trust: Shaping Our Future Together	160
4.9.2 Trade Knowledge Network: Agriculture in Southern Africa	164
4.9.3 Public Library Network, NSW: The Bookends Scenarios	168
4.9.4 Arctic Council: The Future of Arctic Marine Navigation	172
4.9.5 Cofisa: Biotechnology Scenarios for the Eastern Cape	176
4.9.6 United Parcel Service: Migration to Open Source Systems	180
4.9.7 Conservation International: Sustainable Futures for Milne Bay	183
4.9.8 Nautilus Institute: North Korean Nuclear Crisis	187
4.9.9 Office of the Presidency: South Africa Scenarios 2014	190
4.9.10 Bord Bia: The Future of the Irish Food and Drink Market	195
4.9.11 Association of Research Libraries	199
4.9.12 United Nations (FAO): Agricultural Produce in the Nile Basin	203
4.9.13 World Economic Forum: Future of Global Financial System	207
 <b><u>Chapter 5: Research Analysis</u></b>	
<b>5.1 Overview</b>	212
<b>5.2. Purpose in Scenario Projects Studied</b>	212
5.2.1 Case Study Findings	213
5.2.2 Structured Interview Findings	216
5.2.3 Purpose: Interim Conclusions	219
<b>5.3 Capacity and Constraint</b>	220
5.3.1 Case Study Findings	221
5.3.2 Structured Interview Findings	224

5.3.3 Capacity and Constraint: Conclusions	230
<b>5.4 Mechanism of Scenario Purpose Choice Illuminate</b>	231
<b>5.5 Problems of Scenario Follow-on Use</b>	234
<b>5.6 Purpose Platforms: Conclusions and Problems</b>	235
5.6.1 Preference for Legacy Conditions	236
5.6.2 Role of Circumstantial Influence	238
<b>5.7. Markers of Scenario Purpose Distinction</b>	240
5.7.1 Consensus Building	240
5.7.2 Public Dissemination	241
5.7.3 Non-correlation with Public Domain Orientation	244
 <b><u>Chapter 6: Argument and Conclusions</u></b>	
<b>6.1 Overview</b>	246
<b>6.2 Introduction</b>	246
<b>6.3 The Argument</b>	246
6.3.1 Adaptive vs. Visionary-Advocacy Purpose	249
6.3.2 Validity of Both Purpose Approaches	251
6.3.3 The Purpose Examination	252
<b>6.4 Capacity and Constraint</b>	253
6.4.1 The Capacity-Constraint Audit	256
<b>6.5 Linking Capacity to Purpose</b>	257
<b>6.6 Diagnosis and Mitigation of Problems in Scenario Planning</b>	258
<b>6.7 Contribution to Knowledge</b>	263
6.7.1 General Principles	263
6.7.2 Scenario Work in Africa	265
<b>6.8 Directions for Further Research</b>	267
6.8.1 Determining Framework for the Capacity-Constraint Audit	268
6.8.2 Integration with Scenario Typology Literature	268
6.8.3 Applicability Beyond the 2x2 Matrix Method	269
 <b><u>Appendix 1: Schedule of Interviews</u></b>	
<b><u>Bibliography</u></b>	274

“Only the fool, fixed in his folly, may think  
he can turn the wheel on which he turns.”

—Thomas Becket (T.S. Eliot).

[Dator, 2009b]

University of Cape Town

## **Chapter 1: Introduction and Research Methodology**

### **1.1 Purpose and Significance of the Study**

The set of industry foresight methodologies collectively known as “scenario planning” has become increasingly explored and used by businesses, governments and social enterprises, both in South Africa and the world. This adoption has been so significant that scenario planning has over time come to be the key method (more exactly, cluster of methods) challenging and in many cases replacing, “strategic planning” as a foresight and planning framework, because it is better suited to the fast-changing, uncertain, unpredictable operating environment that most institutions face in the 21<sup>st</sup> century. Overall, as detailed in this dissertation via spread of projects studied, the utility of scenario-based methodology in business and social enterprise foresight is established, and there is no longer any real debate that scenario planning offers many merits in helping organisations navigate key mid- and long-term future decisions under conditions of uncertainty and unpredictability.

At the same time, the adoption, use of, and benefit from scenario planning, particularly by businesses has been chequered at best; its perceived benefits vs. costs are unclear to many managers, and with good reason. As explored below, and in the next chapter, the approach has faced fundamental criticism, particularly in that it returns results that are heavily imbued with naiveté or idealism, or outputs from the process are not of a type or in a form usable to decision-makers, and therefore the implications for real-world management are not evident. This



directly prevents adoption of scenario methods by business or institutional leaders, even in situations that would otherwise be manifestly appropriate; or leads to adoption only as “window dressing”, while in fact strategic decisions are being determined elsewhere, via other planning processes. The cost to organisations is that best available practices for making decisions that take advantage of, or are robust to, unpredictable future circumstances are often ignored by management: a prime tool for improving management decision-making towards future change is not used, or blunted in use, which leads to a significant reduction in organisational ability to navigate uncertainty, or manage threats, or to fully grasp and leverage the opportunities that a changing world presents, leading to lost revenue (or alternative value damage to a company or its stakeholders).

## **1.2 Definitions**

The definition of scenarios will, for the purposes of this dissertation, only be fully dealt with in Chapter 2, in fuller discussion of scenario benefits and typologies—because every definition implies a position as to key merits or best use of the scenario technique. In other words, definition in this field, as in many fields, is a contested space. At this point the intention is to offer some common-purpose understanding to provide context for what follows below.

The term “scenario” derives from the dramatic arts and film, where it refers to an outline of a plot or a summary or set of directions for the sequence of action. For businesses or policy organisations, a scenario is by analogy an outline of a plausible

future world (or steps towards it) in which the organisation or its representatives may consider their situation and potential actions by others on them, and them on others, in an unfolding drama. It is a description of the outcome of a constellation of important variables at a particular time in the future, or the described evolution from the present to the anticipated situation. From these definitional origins, a scenario is taken to include sufficient detail as to hypothetical events and actors so that decision-makers can visualise and viscerally comprehend the specific problems, challenges and opportunities that such a contextual landscape would present, were it to come to pass. Also flowing from these definitional origins, while scenarios usually have a quantitative underpinning, they exist a-priori in story form, narrating possible future situations, and placing key actors, events and challenges within a chain of causality and overall thematic congruence.

Within the academic literature, scenarios have been described and defined variously as: “a tool for ordering one's perceptions about alternative future environments in which one's decisions might be played out” (Schwartz 1991, 4); “focused descriptions of fundamentally different futures presented in a coherent script-like or narrative fashion” (Schoemaker 1993, 195); “alternative stories about the future, with many improbable and dramatic twists, to develop strategy” (Kleiner 2003, 1); “complex elements weaved into a story which is coherent, systematic, comprehensive, and plausible” (Coates 2000, 116); or “internally consistent and challenging narrative descriptions of possible futures” (van der Heijden 2005, 14). Glenn & Gordon (2003, 4) define a scenario as “a story that connects a description of specific future to present realities in a series of causal links that illustrate decisions

and consequences... a way of organizing many statements about the future.”

Scenarios are distinguished from other foresight approaches, such as forecasting and risk assessment, by being non-predictive: the defining attribute of the scenario method is scenarios never come singly, they are always in sets of at least two, or more. The essence of the method lies specifically the consideration of a variety of possible outcomes, rather than to attempt to accurately predict a single outcome (Biggs et al., 2007; Bennett et al., 2003). A scenario functions by being set against other scenarios, or against a linear extrapolation of present conditions, in order to broaden and articulate the full spectrum of alternative future conditions, none of which is predicted. Desmerais (2000) states that where traditional strategic planning concentrates on the task environment, scenario planning concentrates on macro-environmental forces that drive change in the context around any organisation. In this, it is generally seen to be applicable to planning in situations characterised by high complexity and uncertainty—across both business and policy environments—that is, situations undergoing (at least in the perception of managers) significant or rapid technological, market or legislative change. Faced with these situations, rather than predict, scenario planning sets out to describe trends and uncertainties as they might evolve, allowing the planner or decision-maker to perceive and comprehend the problems, challenges, and opportunities that such an environment would present. Rather than attempting to narrow possible permutations to a “most probable” outcome, that is, giving in to managers’ understandable preference for “certainty” in decision-making, the scenario method specifically retains the possibility of many outcomes, keeping planning perspectives

open to less probable eventualities, which enhances decision robustness when conditions evolve in an unexpected way.

### 1.3 Research Motivation

The problem for research and resolution in this dissertation crystallised for the researcher at the time of writing the book *Future Savvy: Quality in Foresight* (American Management Association Press, 2009)<sup>1</sup> when, investigating issues relating to forecast quality, the book determined implications for quality in the difference between (a) forecast situations where an individual or organisation's forecast intention was to influence outcomes, that is, make an intervention into or against external drivers of change so as to influence the contextual environment conditions the entity would face in the future, in other words, to change it so as to make a better future context for an agent or company or community or the world-at-large, vs. (b) situations where the agent or organisation's future-investigating intention was to anticipate what would happen in its contextual environment as early and accurately as possible in order to align its responses, that is, investigate changing circumstances in markets, technologies, regulation, and industry conditions in order to profitably adapt to these changes without significantly influencing them.

The discovery, in researching for *Future Savvy*, was that while there is extensive academic and consultant literature on the role and benefits of industry or strategic foresight—essentially to do with competitive fitness in the face of change and

---

<sup>1</sup> Gordon, A. (2009). *Future Savvy: Quality in Foresight*, New York: American Management Association Press.

uncertainty—there has been inadequate academic research that properly acknowledges and investigates the validity of a purpose-based distinction in foresight work in general or scenario planning in particular. Within the academic literature on scenario planning there has been a recent, small, but consistent effort to create a “typology” of scenarios (Van Notten, 2003; Bishop et al, 2007; Biggs, 2007, Wilkinson & Eidinow, 2008) as presented in Chapter 2, but this is still an embryonic debate which deserves more contribution, for the various reasons elaborated below. Within the broader strategic foresight literature, the idea of so-called visionary, or aspirational, or “normative”<sup>2</sup> foresight, that seeks better outcomes or a “better world” is a fairly well-understood concept, but what this stands in contrast to, or the limits and terrain of each, or the implications of inadequately delineating between them, is lacking in clarity. The idea that business or policy foresight perspectives and intentions (and therein alternative practices) can be defined in terms of purpose or constraint conditions is also inadequately unelaborated. In fact, the area is so under-theorized, that the terms “future-influencing,” “future-aligning,” and “future-adaptive” had to be coined by the author when writing *Future Savvy* in 2009.

While I was able to go some way in formulating this distinction, and defining terms based on work I reviewed (and my own work), I suspected the matter to be of

---

<sup>2</sup> Ogilvy, J., (1992) Future Studies and the Human Sciences: The Case for Normative Scenarios. *Futures Research Quarterly*, 8(2), 5-65, provides the definition, elaboration and defence of normative scenarios — that is, scenarios norming to (proposing congruence with) a defined (preferred) future state. This use of the term “normative” in scenario planning is more commonly associated with the French practitioners of foresight, as presented in Chapter 2. Due to inherent definitional slippage and confusion over the term “normative” in English, this dissertation uses the compound term “visionary-advocacy” to refer to this kind of scenario work.

such importance to industry foresight approaches in general, and to the effective use of scenario planning in particular, that I was motivated to research the matter—via the body of research here presented—to see if the academic basis for this distinction was valid, and if so, what the implications of this might be. In order to proceed towards this, the research question I posed myself was in the “sceptical” format: is it in fact empirically verifiable that the array of current scenario planning practices may be classified into two broad categories—based on purpose, each implying a different necessary relationship with external constraint conditions? If so, what is the nature and extent of these purposes and constraint-condition situations, and how should this insight guide best use of scenario method? How might a “constraint-based” purpose perspective improve understanding of scenario practices and guide us to best use of the method, if at all? Investigating and contributing to these questions were the motivations of this study, and making progress towards solving them forms the basis of the contribution to knowledge proposed.

As elaborated in the “Purpose and Significance of Study” section (1.1) above, the most acute of problems that scenario planning faces is that the method appears to managers to be not useful or unusable as a business planning tool in the real world, and-or it creates outputs that demand a strategic response towards “changing the world” when this may not at all be managers’ intention. It appears, in other words, that management misgivings or confusion over applicability of outcomes may be related to the adequacy or inadequacy of context oriented and-or purpose-based discriminations (towards congruence with the underlying

purpose and situational context of the organisation itself). Therefore the contribution to knowledge at stake, assuming purpose-based categorisation of scenario method can be validated, would be to revalidate the place and utility of scenario planning via establishing the importance of scenario macro-purpose distinctions, towards achieving congruence of method purpose with the underlying purpose of the organisation, all towards establishing a solid base for productive use of the scenario method in real-world planning.

#### **1.4 Statement of Objective**

This thesis therefore sets out to academically identify, validate, research, and provide theoretical and practical solutions advancing the understanding and use of scenario planning, as defined above. The primary purpose of the research proposed was first to examine and validity of the distinction anticipated in the research question, by way of focused research into scenario planning project (case study) experience, as elaborated below. The second purpose, assuming the first emerged as valid, was to fully investigate the implications of the distinction in terms of academic and practical contribution to the field. Further, given the home institution for the research degree (the University of Cape Town Graduate School of Business), and the author's own personal and professional experience in South Africa, the specific aim has been to include African scenarios projects as a base for the research—while closely cross-referencing this against international work—with the particular intention of creating models of understanding that are appropriate both locally and internationally.

## **1.5 Research Question: Assumptions and Delimitations**

A full description of research considerations and options, and choices made in fulfilling the research path of the dissertation, is provided in Section 1.7. In the section immediately below, an overview of the research question and its predetermination of the theory-generating nature and direction of the research, is provided.

### **1.5.1 The Research Question**

As anticipated in the statement of objective, above, the research question of the dissertation investigates the validity of creating a “meta-typology” of scenario categorisation, based on the alternative meta-purposes implied in future-aligning vs. future-influencing interventions, each with associated constraint conditions. The research question asks to what extent alternative purpose platforms are valid, and if valid, to what extent each demands congruence with the organisational purpose at large, and also demand justifiable inferences as to an organisation’s real influence over its contextual constraints in order to be valid and fit for purpose, and whether failure to do this diminishes the efficacy of the tool for either purpose.

### **1.5.2 Use of a Research Question in Theory-Generating Enquiry**

Eisenhardt (1989) distinguishes between *theory-generating* vs. *theory-testing* modes of research inquiry, the former building a new theory that validly accounts



for the phenomena observed and studied in response to a research question posed; the latter testing the validity of an existing theory (e.g. hypothesis testing).

Eisenhardt (1989, 548) comments on the applicability of conducting theory-building research—specifically from case studies—as follows:

“There are times when little is known about a phenomenon; current perspectives seem inadequate because they have little empirical substantiation, or they conflict with each other or common sense. Or, sometimes, serendipitous findings in a theory-testing study suggest the need for a new perspective. In these situations, theory building from case study research is particularly appropriate (and) likely to generate the kind of novel theory which is desirable when extant theory seems inadequate. In sum, building theory from case study research is most appropriate in the early stages of research on a topic or to provide freshness in perspective to an already researched topic.”<sup>3</sup>

This form of enquiry is sometimes also known as “evidence assembly”, where data or findings are gathered without an a-priori goal definition, and insights are induced from what is discovered. Where a hypothesis is not forthcoming or achievable for any reason, evidence assembly or goal-free evaluation will provide a basis for intellectual advancement. Scriven's "goal-free evaluation" (1991) is an example of an evidence-based approach.

The state of the scenario field and situation of the academic literature well satisfies the condition: “little is known about a phenomenon, current perspectives

---

<sup>3</sup> Eisenhardt (1989, 536) further states: “Most importantly, theory-building research is begun as close as possible to the ideal of no theory under consideration and no hypotheses to test. Admittedly, it is impossible to achieve this ideal of a clean theoretical slate. Nonetheless, attempting to approach this ideal is important because preordained theoretical perspectives or propositions may bias and limit the findings.”

seem inadequate because they have little empirical substantiation, or they conflict with each other or common sense,” and, as described in the writing of *Future Savvy*, above, this was a case where in-practice findings suggested the need for an improved theoretical perspective. Therefore adoption of a theory-building mode of research along the lines specified by Eisenhardt above, was considered valid and appropriate in this dissertation. Its implications, with particular reference to case studies, are discussed in the research section below.

It is observed that theory in scenarios work has routinely and consistently been extracted from practice—insights into scenario planning approaches, expectations, best practices, etc., emerge most commonly from practitioners out of their own experiences, as many observers including Chermack (2011) have pointed out. This research project aims to continue in this tradition of the field, in extracting theory from (observation of) practice, and providing theoretical underpinning to improve future practice.

### **1.5.3 Research Assumptions and Delimitations**

The research here proceeds without major underlying assumptions. However it is pertinent to observe that the assumption of scenario purpose rests on a “benefit” assumption: the assumption that every institution which investigates the future—invests in greater understanding of trends, drivers of change, and anticipation of probable or possible outcomes—does so in order to benefit themselves (or mitigate loss). The choices that have been made in research path and methods considered and approach finally chosen is discussed fully below (Section 1.7).

Briefly it should here be mentioned that the research proceeds by qualitative analysis; and that there is little valid basis for quantitative research analysis of scenario work. The primary tool used was the case study: nothing else would create the immersion in real project work required to make valid comparative inferences. At the same time, case studies are necessarily focused but may not be broadly representative, so this limitation was overcome by broadening the base of deep case studies with a wider interview-based case-study survey of the work of key practitioners and clients. While such broad spectrum of scenario work is demanded for valid scope of research—scenarios are presented on topics that span both local and international dimensions, and on content matter that varies widely, from HIV-Aids to Arctic marine policy to digital libraries—the research is tightly delimited by relevance to its core topic area: issues pertaining to purpose, method, and constraint conditions in building and using scenarios.

### **1.6 Research Path: Chapter Outline**

Following the introduction to the origination, motivation and scope of the research project, and outline of the contribution to knowledge sought, that has been provided above, this chapter continues below to identify the research choices faced and describe and defend the research methods adopted. All this forms Chapter 1.

Chapter 2, Theoretical Overview, lays the groundwork for the study, investigating the pertinent literature and theory in scenario planning, and between scenario planning and other foresight approaches. The key debates in the academic literature

applicable to the research terrain are elaborated, and issues relating to classification and typology of scenario practices are presented.

Chapter 3, History and Evolution, continues the literature review to register the history and origins of the scenario field, with particular attention to foundational development and emergence which strongly shapes the field to this day, including genesis of understanding of the purposes and limits of the scenario method, which the dissertation seeks to contribute to.

Chapter 4 presents an overview of the research conducted, describing the terrain of the research as conducted. This is divided into two parts, 4A where two primary case studies are presented in depth; and 4B where 13 supplementary case studies are investigated via structured interviews. (The schedule of structured interviews is presented in Appendix 1.)

Chapter 5, Research Analysis, develops the various strands of analysis that are elaborated from the research findings.

Chapter 6, Conclusion and Argument, consolidates the argument of the dissertation with reference to the original research question, and presents the contribution to knowledge that emerges for academic consideration.

### **1.7 Research Methodology and Justification**

The following section outlines and defends the research methodology chosen for this thesis of study. It considers the possible ways of approaching the research question posed above, describes the chosen set of methods and why they were chosen, and builds the argument for why the research path arrived at is the most

effective and reasonable way to investigate the research question. It discusses the perspectives that underpin the study, introduces the methods and procedures used within the methodology, and how provisions for rigour in research have been made. Further, this section explains the philosophical and methodological base of the research path, and demonstrates how consideration has gone into choosing aspects of the framework that are consistent with each other and with the research task objectives, and which fully cover the demands of the research task.

### **1.7.1 Structure of Research Section**

This research methodology and justification section is structured into various parts. In the first part, background issues informing the research are discussed. In the next, the question of quantitative vs. qualitative research approaches and how this relates to the present study is considered, followed by a section which outlines the qualitative research design, and describes each of the major methodologies used and how they interact. This is followed by a concluding section, considering issues relating to interpretation of findings, particularly the reliability and validity of the information and conclusions drawn.

### **1.7.2 Background to Research Methodology Decisions**

As indicated in setting out the research terrain and research question above, and further explained in explaining choice of case study subjects (below, Section 1.7.6.3), this endeavour began with the author's attention to a professional problem of theoretical and practical interest in the field of business scenario planning, which

motivated the pursuit of solving it in academic terms for the purpose of providing practical benefit: improving the practice of managers and practitioners in this field. This has implications for the research methodology path chosen in that great care has been taken to align the research work within theoretical fields not only of rigorous research methodology, but also that of scenario planning, which means grounding the research approach in the study of case practice, and deriving theory from the successes and failure of case practice and the perspectives of practitioners. In this regard the study consciously bridges the worlds of theory and practice, and uses, in part, a “pragmatic” research philosophy, as outlined below.

#### **1.7.2.1 Research Location**

The research topic is international and applies to industry foresight and scenario situations everywhere, without exception. However the decision was taken to orient and locate the research in Africa, and for this reason to develop the dissertation through the University of Cape Town. This is for two reasons. First, as is outlined further in Chapter 3, South Africa has produced many of the pioneers developing and adopting scenario methodology, and has provided location for projects for leading practitioners of the methodology, so it has in various respects led and remains one of the world leaders in the use of this methodology. It is therefore a particularly rich site of research. Second, South Africa, and Africa as a whole, has been at the forefront of developing the visionary-advocacy mode of scenario planning that this study in part orients itself towards, of which the Mont-Fleur project, 1992 (Kahane, 1997), the most famous, is one among many. The research

terrain and the location of study are therefore directly in alignment.

#### **1.7.2.2 Special Skills of the Researcher**

The researcher is a reasonably well-known practitioner, university lecturer, and published academic and professional author in the field of industry foresight and scenario planning. This has potential advantages and disadvantages for developing a methodological basis for the research that follows. The advantages are that the researcher proceeds from a high base in both theory (including an MS In Strategic Foresight from the University of Houston, 1996) and practice in the field, and is familiar not only with every international scenario project of note done in the last 15 years, but also with the analytical discussions that have surrounded and informed them, and the evolution of the field in general over during this period. The researcher therefore has considerable advantages in being able to bring this background to bear in choosing research methodologies, appropriate case studies, and potentially fertile project-interview candidates. On the other hand it is recognised that this level of advancement and immersion in the field could result in the researcher being bound by the theories and practices of the field, including its learned mental models and practice preferences. For this reason, considerable attention has been made to validate the findings via multiple and triangulated methods in the research approach and methodology, as detailed below. There is benefit to be had in the translation of professional experiences into new theory in the field, but only if this has external justification, which is sought via the academic research path.

### **1.7.2.3 Practical Knowledge and Benefit**

As noted above, the aim of the researcher was to develop useful, practical, beneficial intellectual knowledge to inform practice in a field in which he himself has been working, and will continue to research, teach and work. In discussing practical benefit from theory in this field, it is important to note first that most knowledge in the field of scenario planning has come from the study of real-world projects and practices, and the reflections of practitioners on their own work (Chermack, 2011). The research in this document continues this tradition in both spirit and method: studying what practitioners do, what has worked and what has not, and reflecting on this, and relating it to academic theory and insights in the field to develop solid theory on which to base future practice. Therefore the research follows, in part, the principles of “pragmatism,” which supports the concept of practical knowledge (Patton, 1990) and sees research as a practical activity aimed at producing useful knowledge, rather than merely understanding the world (Mingers, 2000). In this the research also meets the injunction from Chia (2004) and Johnson et al. (2003) to more closely examine and base research in the actual practices of managers.

Implied in this choice is the resolution of one original question of research methodology for this study: did the research require empirical observation or could it be resolved theoretically? As Alvesson & Sköldbberg (2000) observe, empirical analysis is not necessary for the development of a theory. But, given the practical orientation of the field, and the research, and following McAllister (1996), it was determined that significant issues and problems would be missed in a theory-only



approach. On the other hand, contribution to knowledge of course cannot be developed without relating empirical findings to existing theory, and developing new theory where required; so the research has consciously followed a trajectory that moves between empirical analysis and theoretical frameworks and seeks an integration of thinking in the theoretical literature and insight from the views of practitioners.

#### **1.7.2.4 Going Beyond Existing Studies**

Given that pragmatism demands integration with real-world practice, empirical research was clearly necessary. The next question was whether existing studies could be used, or whether new primary data or empirical observations had to be gathered. Although much material exists in secondary sources (and this was extensively consulted in the theory review, Chapter 2; history review, Chapter 3; and existing-project analysis preparatory to Chapters 4A and 4B), the specific need to investigate producer and client purpose in scenario building made it obvious that new empirical findings would have to be gained from primary resources, such as case studies and interviews as described below.

#### **1.7.2.5 Summative vs. Formative Analysis**

Scriven (1967) makes a distinction between summative evaluation, which sums up the accomplishment of a programme or process on completion, and formative evaluation, which evaluates a program or process during development. A summative evaluation would ask and answer the question: "How good is/was this

process?” (with reference to previous processes, or comparable processes, or ideal criteria), while a formative evaluation would answer the question “How can this process be improved?” When a method is recently developed or in development, the formative evaluation is more pertinent.<sup>4</sup> This is relevant for the research that follows because of the pragmatic benefit sought: the goal is to provide research that improves practical use of scenario planning, a form of planning that is only 45 years old at most generous count, that is, with much potential, but in many ways still in its formative phase. Much has been achieved, but there is still far to go. We are well beyond the stage where the driving question could be or should be whether scenarios are useful or not; we are at the point where the important question can be framed as “how can its processes be improved?”

Scriven’s original definition of formative evaluation was simply “outcome evaluation of an intermediate stage” (Scriven, 1967, 51), but Chen (1996) has developed the distinction, separating summative vs. formative further, into process vs. outcome, and improvement vs. assessment. In these terms, the rationale of the research that follows is one of process improvement. Tessmer (1993) notes that formative research does not rule out quantitative methods, but qualitative research modes are more common. Conversely, summative research more frequently uses quantitative methods. This is one of the motivations for the choice of a qualitative research path, as described further in the next section.

---

<sup>4</sup> Flagg (1990, 5) defines formative evaluation as “any kind of feedback ... intended to improve the product during design, production, and initial implementation.”

### **1.7.3 Qualitative vs. Quantitative Research Approaches**

A primary decision in research method for research of this type was whether to proceed via quantitative or qualitative methods, or a combination of these, that is to say, a “mixed method” approach. This question has both academic and practical dimensions. Academically, the issue relates to which type of approach will lead to most comprehensive investigation of the research terrain and investigation of the research question at hand. Practically the question has to do with whether both approaches are sensible and achievable, if indeed they are both possible. These questions are answered below.

#### **1.7.3.1 Limits of Positivism**

Positivism (sometimes called “logical positivism”) refers to a set of methods for testing hypotheses or inferences about the world by collecting empirical observations and quantitatively or statistically measuring them to determine the validity of the proposed conclusions. The approaches involved in this have been developed based on traditional research in the physical and natural sciences, associated with scientists such as Comte and Durkheim, and was given the umbrella label “positivism” in the early 20th century in Whitehead and Russell’s *Principia Mathematica* (1910). In this tradition, the researcher attempts to be an objective, neutral observer, emphasising measurement of “external” events and deducing knowledge from this.

The advantages of a positivist approach are in its orientation to empirical findings, “hard” data, and perceived lack of bias or interpretation. This has made positivism

the basic mode of scientific research, in fact synonymous with the concept of scientific research. Such research assumes and promotes the neutrality of the researcher and therefore validity of claim towards objectivity, although there are increasingly agreed limits to this view (Astley, 1985), as discussed below. It is to be noted that quantification is only part of the positivist approach: statistical analysis is typically preceded by the development of one or more hypotheses to be quantitatively tested, and by gathering of data, and may be followed by the attempt to generalise the statistically valid case to wider situations or general theory.

The formal logic, apparent rigour and low-bias benefits of the positivist approach have caused it to become not only the essence of scientific enquiry, but also to be adopted widely in economics and across the human, social and linguistic sciences. But here its adoption has been mired in controversy and growing criticism. In the past 25 years, with the failure of positivist modes to adequately account for or predict behaviour particularly in the complex or “chaotic” situations that evidently pertain in social domains where language and communication are central elements, or where the role of causal variables is hard to determine and therefore more subject to greater interpretation than in the physical sciences, positivism has gathered critics. A body of intellectual opinion as to the limitations of positivist methods in general, and the severe limitation of their validity in the study of human and social situations that are often inherently unmeasurable or uncodifiable without the entry of researcher interpretation, has grown up.

There has thus been a notable rise of “post-positivist” sensibilities in research theory, particularly setting itself to adequately acknowledge and incorporate the

active, interpretive role of the researcher in determining research inputs, outputs, and construction of meaning from them. Sarantakos (1998) comments that positivism spuriously assumes that science is free of personal, political or religious values, predicated on an “objective reality” that pre-exists observers. Knights (1992) holds that elements of positivist research—experiments, hypothesis-testing, and quantification—are often practiced unreflexively due to their origin in hard sciences where it is commonly considered that the researcher is separate from the research object (and that this is a desirable situation). Dey (1993) comments that the knowledge produced by positivism is limited by predefined boundaries, including mental models of the researchers and the process they follow. Steffy & Grimes (1986) make the case that researchers are constricted by beliefs and values obtained through training, or peer influences, and are swayed by the goals of the research itself, but that this remains largely hidden from the consciousness of unreflective researchers.

### **1.7.3.2 Interpretative Research Approaches**

“Qualitative research” is the commonly applied umbrella term for non-quantitative information collection and analysis techniques. In this mode of research, verbally oriented tools are paramount, for example in interviews—which stand at the core of qualitative scholarship. But qualitative analysis has to do with more than prioritising verbal techniques over data-driven approaches. Traditional scientific and positivist scholarship conceptualises knowledge as external “fact” and therein independent of values. “Post-positivist” research philosophy rejects the externality

(external to the perceiver) of knowledge, and acknowledges interpretative values as affecting all inquiry, including scientific inquiry (Bell, 1996). In other words, qualitative research is inherently phenomenological, that is, seeking to interpret phenomena in terms of the meanings people assign to them. In this, qualitative approaches offer the researcher a research orientation that is decisively not value-free or theory-free; a base in research towards understanding how reality is not pre-existing or external to the research, but in fact socially constructed, negotiated, managed and sustained (Gubrium & Holstein, 2000; Phillips, 1990) or actively interpreted (Sarantakos, 1998) and so reflects the standpoint of the researchers as much as the researched. Silverman (1993) reflects that qualitative research locates the observer in the observed world. Such value-laden research requires researchers to be aware of how their own backgrounds, socialisation, and mental models influence their research—in choosing what to research, how to pursue it, in deciding what counts as significant evidence or data, and how to interpret results. Eisenhardt (1989) holds that qualitative assessment is particularly useful for understanding why or why not emergent relationships hold. When a relationship is indicated, the qualitative assessment often provides an understanding of the dynamics underlying the relationship, that is, the “why” of what is happening.

#### **1.7.4 The Qualitative-Interpretive Research Basis Decision**

It is evident that both quantitative and qualitative research methods have validity, and so in determining which path to take (or whether to follow a “mixed-methods” approach, see below) it was necessary to examine the topic of research to see which

approach made theoretical and practical sense. As Creswell (1998) notes, the nature of the research problem is a key factor in the choice of research methodology. In making this estimation, the first thing of note is that the field of scenario planning is—by its very definition and orientation—the place where formal, positivist, analysis of the future for companies (quantitative, data-driven, trend-extrapolative forecasting) is forced (by length of view into the future, that is necessarily always both complex and uncertain) to give way to qualitative analysis. In other words, scenario planning is a qualitative method that “takes over” from quantitative forecasting where problems are too complex or too long-term to be validly assessed quantitatively (Gordon, 2011). As discussed at more length in Chapter 3, business adoption of scenario planning has proceeded quickly and decisively, particularly where it was found that positivist frameworks produce poorly when tasked with anticipating the complex, multi-causal, unpredictable factors shaping the future (Wack, 1985a). Better foresight was judged to occur when the assumptions of the planner or executive team are probed, via the forms of qualitative, interpretative forms of analysis that scenario work promotes, prior to quantitative forecasting methods (where used).

The implication for the research in this dissertation could not be clearer: the qualitative and interpretative critique of quantitative corporate prediction modes that scenario planning embodies matches up directly with qualitative research caveat towards positivist research methods, as described and sourced above. Like scenarios themselves, qualitative academic research deals with concepts that are often not clearly definable, or for which there exist a range of interpretations, and

enables a rich, in-depth exploration of multiple possibilities and different experiences.

#### **1.7.4.1 Consideration of 'Mixed Methods'**

Some theorists, for example Cupchik (2001) in discussing constructivist realism, and Kleining and Witt (2001) on heuristics, hold that quantitative and qualitative approaches can be integrated in one research project, in a so-called "mixed-methods" approach. To consider whether this would be possible or make sense in the current research demands a thought-experiment as to whether and how a quantitative approach might be possible. One would need to set up a formal experiment to test the "hypothesis" (that visionary and adaptive scenario situations are different scenario methodologies each appropriate to different purpose, and that purpose is related to constraint conditions). The first problem is an absence of data in the scenario process. Although data is used in constructing scenarios, and hypothetical data is produced in fleshing out scenario worlds, the scenario process is itself not subject to any quantifiable output measure that would validly point to presence or absence of success. That is, one may measure length of time taken, or money spent or saved, or number of people producing or using the work, and so on, but none of these correlates with success or failure. As will be seen in the research results themselves and analysis thereof, success in business scenario building and use is a subjective (but not random) measure and therefore must be qualitatively researched. Further, to validate causal links or test a hypothesis, or both, demands an experiment of the type outlined by Light, Singer & Willett (1990), including



reference to a control group. This means it would demand setting up situations where some organisations are put through a (repeatable) scenario process and others form the control or “placebo” group. Not only is the scenario process never identically repeatable in itself, due to the fairly free-form interactive workshops that lie at its heart, but it is effectively unimaginable that any organisation or company would participate as a control group, even just for experimental purposes.

In sum, any form of positivist approach appeared unhelpful for developing a research process for the topic at hand, or researching the companies and projects under study, and for this reason the researcher looked for a research path beyond the bounds of either a quantitative or a mixed-method approach. By contrast, it is well understood that qualitative research is considered appropriate for an analysis of concepts and themes that require rich analysis and in-depth understanding, and that qualitative methods are most appropriate when researching dynamic processes construed by individual and collective interpretations, as was the case here. Therefore, while the limitations of qualitative and interpretative research are acknowledged, particularly in its reliance on the interpretative assumptions of the researcher, it was decided to follow a qualitative academic research path.

### **1.7.5 Research Design**

With debates about quantitative and-or mixed methods based research out of the way, what remained was to decide what form of, or mix of, qualitative research methods would be appropriate to the task at hand. Noting that such approaches are mostly not clear alternatives to each other, but overlap in intent and process a fair

amount, the question is which “mix” of qualitative approaches would be appropriate and necessary, and in what order should they be applied, given the objectives of the research and the type of knowledge sought. Various theorists advocate the use of mixed qualitative methods, including Mingers and Gill (1997) in a book that argues that methodological pluralism is not only valid but preferable, due to its encouragement of multiple perspectives. This also has direct bearing on the promotion of triangulation in the research approach, as discussed below.

#### **1.7.5.1 Choosing Among Qualitative Research Options**

Creswell (1998) defines five major qualitative research approaches: Narrative Research, Phenomenology, Grounded Theory, Ethnography, and Case Study. After becoming familiar with each type and how they overlap, the researcher decided on Case Study as a base, to be augmented by narrative research, and phenomenology which in practice would take the form of semi-structured interviews of subsidiary cases, after project (document) assessment, for reasons that follow. First it is noted that the most common qualitative research methods are interviews, observation, and document studies. Rapley (2001) estimates that interviews are the primary data collection tool in 90% of all social science research. As action-observation (as would be, in this case, observation of “live” scenario workshops) was not directly material to the topic—and the part of this that was relevant could be more than adequately captured via project write-ups, that is documented action—the researcher determined that project-document analysis and interviews based thereon (that further probed and questioned the perceptions and practices as reported in the

project documents) would be the most effective planks of the research method. Further clarifications on issues relating to the merits of interviews vs. surveys; and structured vs. semi-structured interviews; as well as in-depth discussion of the role of each major tool (case study, interview, project-document analysis) used, proceeds below.

#### **1.7.5.2 Sequential vs. Simultaneous Application of Methods**

Given that case studies, and interviews and project document assessment were to be used, the question then became whether the methods should be followed sequentially (if so, which first?) or simultaneously. On this question, Pope, Ziebland, and Mays (2000, 114) offer the following perspective:

“In much qualitative research the analytical process begins during the data collection phase as the data already gathered are analysed and fed into, or shape, the on-going data collection... It allows the researcher to check and interpret the data she/he is collecting continually and to develop tentative conclusions based on the data already collected, or hypotheses for subsequent investigation in further data collection. Compared with quantitative methods, this has the advantage of allowing the researcher to go back and refine questions and to pursue emerging avenues of inquiry in further depth. Crucially, it also enables the researcher to look for deviant or negative cases; that is, examples of talk or events that run counter to the emerging propositions or hypotheses, in order to refine them. This type of continuous analysis is almost inevitable in qualitative research; because the researcher is ‘in the field’ collecting the data, it is impossible not to start thinking about what is being heard and seen.”

Similarly, Eisenhardt (1989, 546) suggests the need for a similar framework of continuous, iterative research, describing the efficacy of a process that is “iterative, reflective, (generating) new questions, revisiting... intimately tied with empirical evidence.” Alvesson & Sköldbberg (2000) observe that, not only are research findings an outcome of interpretation and construction, but the acts of constructing and analysing data often take place symbiotically, with mental relational activity going on in the background, making for a “reflexive” process. Similarly, it should be noted, the analysis here involved iteratively returning to the information during the writing-up phase of this document as fresh insight was developed through the digestive process of writing itself.

As it was accepted that the iterative research process was both in itself highly valuable, and highly adapted to the terrain of the scenario field in general, and to the research question in particular, so sequential, iterative use of qualitative methods, was endorsed. Once it was established, for reasons discussed above and below, that the primary case studies would lay out the terrain of the research (to be endorsed or tempered by the project interviews) the sequence more or less defined itself: first the cases studies, then further project interviews, all subject to continuous revisitation. In the event, through the research process as it occurred (between project-document research, case studies, and interviews; and within the interview process itself), the iterative nature of qualitative research was recognised. That is, the researcher expected and indeed found that information collection and assessment activities were not and could not be cleanly demarcated, and that themes, concepts and relationships between variables

emerged productively in the iterative construction of an emergent theoretical framework from the growing observation base gathered in primary research.

#### **1.7.6 Case Studies**

A case study implies in-depth study of a situation, event, or process. It involves gathering detailed information about a group or individual, sometimes over a long period, to obtain in-depth knowledge of target subjects in context. MacPherson, et al. (2000) comment that the study of a single case indicates an interest in its uniqueness, and what makes it both alike and dissimilar to comparative examples. Van Maanen (1998) determines that instrumental case studies are an “epistemology of the particular”, contributing uniquely to knowledge through their description of particular actions and specific situations. Hussey & Hussey (1997) describe the case study as a detailed examination of a single instance of a phenomenon of interest. It is therein an example of a phenomenological methodology, as mentioned above.

As this depth of description and analysis was required for describing scenario process and therein drawing out the themes of the research question (and framing the correct questions for the project-document analysis and semi-structured interviews that were to follow), the research situation clearly called for the case study method. To have carried out the research project without using case studies would have left it groundless in describing in meaningful detail how each of the observed scenario purpose platforms works in practice, and the methodological choices that underpin each. It should be noted that while case studies sometimes imply immersion of the researcher on-site and over a long period in the researched

environment (along the lines of classic anthropology), this is not necessarily required for effective case study. Van Maanen (1998) notes that case study researchers may rely on secondary data sources and may make only brief forays into field locations, rather than the extensive periods commonly associated with ethnography.

#### 1.7.6.1 Types of Case Study

Hussey and Hussey (1997) define five different types of case study:

- **Exploratory case study:** relevant where there are few extant theories or a low level of existing knowledge.
- **Descriptive case study:** relevant where the objective is restricted to describing the current practice.
- **Illustrative case study:** relevant where there is need to illustrate new or special practices or responses to situations manifested by the studied object or group.
- **Experimental case study:** relevant where the researcher examines the difficulties in implementing new procedures or techniques in an organisation.
- **Explanatory case study:** relevant where the case is used to explain and disseminate understanding about the nature of a situation or how a process works.

Within this framework, the case study type used in this research is (a) exploratory, (b) illustrative, specifically looking to illustrate scenario purposes and methods in practice, and (c) explanatory, looking to disseminate understanding about the

nature of each case study's situation and choices, and how each different process works.

#### **1.7.6.2 A Single Case Study vs. Multiple Cases**

There was a further decision to be made, as to whether a single case was required, or more than one, and it was clear from the outset that the multiple-case approach was more appropriate to this research situation. Given theory-building purpose of using the case study method here, and the specific objective of exploring, illustrating and analysing two apparently contrasting approaches to scenario building, using a single case study (providing no basis for comparison) would not take the research forward in any meaningful way. On the other hand, given the illustrative and explanatory purpose, there was no need for more than two primary cases, each chosen to provide a base for exploring one of the two suspected purpose platforms in scenario work. Noting section 1.5.2 above, where the mode of research proposed and to be followed in this dissertation is theory-generating in terms of Eisenhardt (1989), that is oriented towards building a theory that validly accounts for the phenomena observed and studied in response to the research question posed, the aim of investigating the case studies was to arrive at theoretical inferences in terms of the research question using the in-practice case material—therefore exploratory, illustrative and explanatory use of case studies in terms of Hussey and Hussey is appropriate. Further corroboration, as necessary, was achieved through comparison of the cases with other projects (supplementary cases) via project-document study and through expert interviews, as presented in Chapter 4B.

### 1.7.6.3 Choice of Case Study Subjects

As noted in Section 1.4 above, the researcher had a commitment to using African studies (in addition to a mix of international studies) in this research, not only because this is appropriate given the background of the researcher and institution of study, but also because South African organisations were among the earliest, and have been among the most consistent users of scenario work in the world. It had also come to the researcher's notice, while lecturing at the University of Cape Town Graduate School of Business, that *The Metropolitan Life Foundation* had in 2005 produced an extensive, well-documented and generally meritorious set of scenarios (collectively called "Live the Future") to do with HIV-Aids and the future of South Africa.<sup>5</sup> At more-or-less the same time (November 2008) the researcher was a presenter and participant at an industry foresight conference in London where *Arup Foresight*, a branch of the international firm *Arup*, presented a report on scenarios they had then-recently (mid-2008) developed for a company in Tanzania.<sup>6</sup> It was apparent to the researcher that these two projects, although similar in key ways, and each excellent representations of the scenario method in themselves, appeared to manifest different orientations to purpose and contextual constraints, and that this difference could be important for theory and practice in the field. It made sense therefore to use these two studies as the primary case studies.

---

<sup>5</sup> Metropolitan Life (2006). *Live the Future: HIV and AIDS Scenarios for South Africa: 2005-2025*, Cape Town. This is a cluster of documents, including Project Overview; Methodology; and Respond to the Challenge, as well as various forms of multimedia, Web, and other forms of public messaging.

<sup>6</sup> Arup Foresight (2008). *Eco-Resorts of the Future*, Ngurdoto Mountain Lodge, Tanzania.



Eisenhardt (1989, 541) comments that building theory from case studies benefits from productive juxtaposition: “constant juxtaposition of conflicting realities tends to ‘unfreeze’ thinking”. That is, attempts to *reconcile* evidence across cases, types of data, and different investigators, and between cases and literature, increases the likelihood of creative reframing into a new theoretical vision.

“(One) tactic is to select pairs of cases and then to list the similarities and differences between each pair. This tactic forces researchers to look for the subtle similarities and differences cases. The juxtaposition of seemingly similar cases by a researcher looking for differences can break simplistic frames. In the same way, the search for similarity in a seemingly different pair also can lead to more sophisticated understanding. The result of these forced comparisons can be new categories and concepts which the investigators did not anticipate.”

In a similar vein, Pettigrew (1988) comments that it is productive to choose cases such as “extreme situations” and “polar types”. In this spirit, cases were chosen here for the (theory) generative effect to be achieved via productive juxtaposition. In this active selection of primary cases studies, it is noted that cases were not chosen randomly. Eisenhardt (1989) adds that random selection is neither necessary, nor even preferable (as in traditional, experiment-based, hypothesis-testing studies which rely on statistical sampling, in which researchers randomly select the sample from the population); it is more productive of theory to choose cases that are likely to replicate or extend the emergent theory. The primary case study subjects, as presented in Chapter 4A, were therefore chosen on the basis of their methodological excellence, general equivalence, and suggestion of

theoretically productive differences, and therein their suitability for the purpose of the study.

In choosing these cases, and carefully studying them, the researcher presents them as representative and authentic accounts of the situations studied from which theoretical generalisations may be drawn. It is noted that the object of using the cases is to develop the theory and practice of scenario planning, rather than to develop knowledge about Aids or insurance in South Africa or tourism in Tanzania: the cases are not presented or analysed in terms of their underlying topic content. They are studied to see if and how apparently equivalent projects differ in ways that may be productively understood and applied by scenario planners in organisations going forward. It should be noted that an analysis of these contrasting scenario case studies was published by the author of this dissertation as “The Uses and Limits of Visionary Scenarios: Learning from the African Experience”, in the management strategy journal *Foresight* (Emerald).<sup>7</sup>

#### **1.7.6.4 Project-document Analysis**

Following the case studies, project-document study of similar alternative scenario projects across business, government, and non-profit domains was necessary for a number of reasons. Particularly it was necessary to examine a broader archive of documented projects in scenario planning (this is over-and-above the methodology and history literature surveys presented Chapters 2 and 3 respectively) to see how well, if at all, they reflected the comparative paradigm set out by the case studies.

---

<sup>7</sup> Gordon, A. (2011). The Uses and Limits of Visionary Scenarios: Learning from the African Experience, *Foresight*, 13(4), 64–81.

Second, the project-document analysis was required to identify appropriate candidates for the subsidiary cases studies (studied by semi-structured interview) that were to follow. This is a case of, as mentioned above, how the research path of the dissertation follows an iterative journey backwards and forwards across case studies, project analysis, and interviews.

As in all research, knowledge of the “population” set of entities from which the research sample is drawn, is crucial, as is basis for selection of the sample from it. Selection of an appropriate sample controls extraneous variation and frames the limits for generalising the findings into theory. The researcher has knowledge of (and document possession of) most of the estimated 100+ substantial, documented scenario projects to have been undertaken around the world in the last 20 years. Where the researcher has not been directly involved, these projects have been located primarily through journals, conference proceedings, Internet sources and word-of-mouth. In a self-driven research mode that long preceded this specific dissertation, the author has collected and continues to collect electronic copies of every scenario project write-up document publicly available. For this research project, these were gathered, reviewed, and sorted based on apparent purpose manifestation, to prioritise those that might further the research question, and which would therefore be fertile ground subsidiary case study, and therefore for structured interviews.

#### **1.7.6.5 Hermeneutics of the Text**

It is recognised that project-document study is not without its own problems of

cognition and interpretation. In this regard the field of hermeneutics, which tackles the role of the text in mediating the reader's encoding and decoding of meaning, is relevant, particularly in that it alerts the researcher to the "production" of meaning in the negotiation between the reader and the text. Bruner (1990 & 1991), resting on a well-established tradition in philosophical hermeneutics that goes back at least to Roland Barthes (1975), alerts us to the differences between what may be intended in the text and how it may be read. This researcher, who has a strong foundational intellectual base in hermeneutics and "discourse theory", was himself well aware of these potential problems and sought to ameliorate them through comparative structured interviews with key participants in documented projects, and via the triangulation between interpretation of document studies, the primary case studies and the semi-structured interviews.

### **1.7.7 Interviews**

As explained above, interviews were needed as a third source of qualitative study, to clarify and corroborate information gathered from project documents with reference to subsidiary case studies, and to verify the principal findings of the primary case studies. It is to be noted that the primary case studies themselves required interviews, so the discussion that follows here incorporates both forms of interviews.

#### **1.7.7.1 Survey Method: Advantages and Disadvantages**

One of the key questions of the research project was how best to gather information

from field experts about their documented projects, or about experience observations they may have in general, that could shed light on the research question. One of the time-tested modes of participant (general or expert) consultation is the formal survey or questionnaire. This has many advantages as a data collection instrument, principle among them being ease and breadth of distribution at relatively low cost (even easier and cheaper these days given on-line technologies) with subsequent reduction in distribution bias; potential anonymity of respondent and subsequent reduction in response bias; standardisation of questions and subsequent reduction of researcher bias or error; and advantages in terms of speed (the researcher can gain many responses simultaneously); allowing, for all these reasons, research that evidences the benefits of large sample size.

In other words, the standardised survey or questionnaire provides an ideal way to gather the perceptions of a group of individuals or organisations, particularly where a large sample is warranted and possible. However, the research here proceeded from an almost diametrically opposite base. Based on project-document write-ups, the number of interviewees was a theoretical maximum of about 40, and would likely be winnowed down further by the vagaries of who would agree to be surveyed or interviewed, such that a large sample was never anticipated. What was possible, and highly required, was in-depth discussions with project experts who could be asked to intelligently and specifically share their case experience or experiences, and in doing so shed light on the research question. This suggested that interviews would be more productive than surveys.

Further, Johns and Lee-Ross (1998) comment that the survey technique generally

asks “who, what, how many or where” questions, that is, fact-oriented questions (although to some extent simple-form opinions can be gathered, for example via Likert-scale analysis). However, what was required in this research project was not primarily the facts—which were mostly known or documented already, but an understanding of a research subject’s specific professional experience, and his-her professional insights into it. It was determined by the researcher that no survey, however carefully constructed, could provide the process-introspection that a one-on-one, in-depth interview would provide, which was essential for generating the insights the research project sought. In other words, what was required was not static fact data but a dynamic understanding of field professionals as they engaged in action, and interaction within the contexts and settings of the projects they had developed. Only through eliciting respondents’ rich reflections and perspectives could the researcher come to understand how and what kind of interventions determined the purpose of field experts in process, and the fit of methods to purpose and constraint that the research question seek insight into, so as to derive the full benefit of the project expert’s field expertise for research ends. Further, Creswell (2002, 206) comments: “One-on-one interviews are ideal for interviewing participants who are not hesitant to speak, are articulate, and who can share ideas comfortably”, and this condition was certainly fulfilled by the likely interviewees who are all high-functioning, successful professionals in the field of scenario planning or related fields. All this suggested that interviews would be more productive than surveys, and following the logic of the argument, what would be most beneficial would be not merely “structured” interviews of the style that asked

preconceived questions in a given order (effectively a “live” survey), but interviews that had freedom to probe respondents on points of interest as necessary.

#### **1.7.7.2 Structured vs. Unstructured Interviews**

For these reasons it was decided that interviews would be far more productive than a survey. Further it was decided that the interviews undertaken would followed a semi-structured format, as elaborated below. In this is implied a decision not to use completely unstructured interviews. Unstructured interviews are most helpful when the research purpose is truly exploratory (unguided by a research question), or the interviewer is attempting to map the terrain of a field prior to entering it. As this was not the case here, and as the purpose of the interview process was to analyse interview responses and compare them to each other, and compare each to the project document that originated it, and to the framework of the research question itself, it was clear that unstructured interviews would be unhelpful. As Leedy and Ormrod (2009) observe, unstructured interviews run the risk of covering widely different topic areas, and therein gaining no instructive or usable comparative overlap in ground covered, and therefore compromise the ability to compare viewpoints to each other and to the terrain under discussion.

#### **1.7.7.3 Semi-structured Interviews**

Counting out both the structured-survey approach and the unstructured interview approach, left the researcher with a semi-structured interview framework, where the interviewee would be asked to address a standard set of questions, but the

interview could follow less structured lines of questioning and interpretation as the situation demanded, as outlined by Kvale (1996). The structure, of each interview and across the interview process, would be provided by core questions (see Chapter 4B for question list) but beyond that, the interview would encourage enrichment from the interviewee regarding further understanding of the research topic. A structure was necessary to make the interviews broadly comparative to each other and the research topic, but the possibility of situationally unique questions was equally necessary, to allow the interviewer to probe and gather value from areas of importance which may not have been evident in advance.

In this spirit it is noted that Creswell (2002, 208) advises that the interviewer must “Have a plan, but be flexible”, and be allowed to follow specific issues from initial general questions. Leedy & Ormrod (2010) say it is to be expected that specific issues can be raised as the study progresses (from interview to interview) and the research issues become better understood. Also, following Feyerabend (1993) who says methodological constancy might appear rigorous but can in fact limit the penetration of the analysis, the interview question path was adapted where necessary, and sometimes improvised, based on the responses of participants to gain the highest value from the interview.

The research presented in this dissertation broadly follows the seven stages of an interview investigation (Kvale 1996, 88):

1. Thematising: Formulate the purpose of the investigation and describe the concept of the topic to be investigated before the interviews start.



2. Designing: Plan the design of the study, taking into consideration all seven stages, before the interview starts.
3. Interviewing: Conduct the interviews based on an interview guide and with a reflective approach to the knowledge sought.
4. Transcribing: Prepare the interview material for analysis, which commonly includes a transcription from oral speech to written text.
5. Analysing: Decide, on the basis of the purpose and topic of the investigation, and on the nature of the interview material, which methods of analysis are appropriate.
6. Verifying: Ascertain the generalisability, reliability, and validity of the interview findings. Reliability refers to how consistent the results are, and validity means whether an interview study investigates what is intended to be investigated.
7. Reporting: Communicate the findings of the study and the methods applied in a form that lives up to scientific criteria, takes the ethical aspects of the investigation into consideration, and results in a readable product.

In the event, a framework of standard questions was posed during the interview, in the same order, during which, and-or after which, further questions were asked and individually tailored as appropriate to the dynamic of the interview and the special knowledge and experience of each interviewee. Respondents were specifically encouraged to approach the topic through their own methods and concepts (rather than respond to the interviewer's concepts or terminology) and this further

suggested a need for a certain question-and-answer freedom and manoeuvrability in the interview, as allowed for by the semi-structured interview framework. The interviews varied in length, but were on average 45-60 minutes each, including setup and post-interview descriptions and clarifications.

It should be noted that scrupulous efforts were made to mitigate inherent limitations to structured-interview findings, throughout the orientation, collection and analysis of empirical information interview sessions—by broad selection of different types of expert, and attention to respondents' likely sources of or reasons for bias. It was not assumed that practitioners are necessarily able or willing to honestly evaluate the validity of their own work, or their own or others' successes and failures, or that there are not other obstacles to valid qualitative interview findings (for example confidentiality), and attention has been paid to mitigating these problems, particularly in formulating a semi-structured approach so as not to confront the practitioner with research-positive or -negative loaded questions, nor with the direct framework of the research question (which could anchor or otherwise persuade responses), but rather to elicit interviewees' views in their own words and frameworks, and incorporate this into the broader findings in an academically rigorous way.

#### **1.7.7.4 Choice of Interview Participants: Purposive Sampling**

As is discussed above (Section 1.7.6.4), and in the introduction to the interviews in Chapter 4B (Section 4.6.), document study preceded choice of interview participants. As the interviewees would be selected because of their involvement as

patrons or facilitators of representative scenario projects, the selection of interviewees in fact devolved to the selection of scenario projects worth comparative study (relevant to the cases studied and research question) as determined via document analysis. Once a project document suggested the project would yield productive study, one or more interviewees who could talk in depth about that project was searched for.

As motivated above, survey-style interviews were not appropriate given (a) the small pool of qualified respondents, and (b) the depth of interview required. For the same reason, probability-based sampling to find appropriate projects for study was also deemed inappropriate, and non-probability sampling, that is, specifically “purposive sampling”, was adopted. Purposive sampling is a process in which decisions concerning the sample are taken by the researcher, based upon judgemental criteria, particularly in judging which study or which interviewee would be most likely to contribute valuable data and insights with reference to the goal of the research. Patton (1990) states that purposive sampling offers researchers a degree of control, particularly in the selection of participants who have knowledge or experience of the area being investigated, and so allows focus of the research on the most valid and productive sample. It is noted that criticism of purposive sampling is, similarly, that it relies on the judgement of the researcher and therefore can be prone to researcher bias, especially when compared with probability sampling techniques that are designed to reduce such bias. However this problem is most apparent when judgements are ill-conceived or poorly adapted to the research question. In this case great care was taken to create a sample of

projects which (a) offered pertinent insight to the research question and (b) covered a broad spectrum of iterations of the method.

Common types of purposive sampling (Patton, 1990; Kuzel, 1999) suggest determining cases to included based on the following criteria:

- Extreme or deviant cases, used to focus on cases that are special or unusual manifestations of the phenomenon of interest
- Information-rich cases that highlight the phenomenon clearly (but not extremely)
- Maximum variation cases, which represent a wide range of variation along dimensions of interest, or capture a wide range of perspectives relating to the phenomenon under study (and which may also identify important common patterns across variations)
- Homogeneous cases, which are selected for reduced variation and focus on common concerns
- Typical or paradigmatic cases, which illustrate normal, average or exemplar situations
- Stratified or purposeful cases, which allow focus on characteristics of particular subgroups of interest
- Confirming or disconfirming cases, which allow for elaborating and deepening initial analysis, seeking exceptions, or testing variation
- Critical cases, where a single case, or small number of cases, are decisive in investigating the phenomenon of interest
- Criterion cases, where cases are picked on the basis on meeting a particular

criterion or set of criteria

- Snowball or chain cases, where new cases in the sample are generated by determining new relevant cases from interviewees themselves

For the purposes of this study, projects (and then interviewees) were selected to contribute projects that were information rich, paradigmatic, and of maximum variation—the latter to ensure project choices as a whole were representative of the diverse characteristics of the scenario project population as a whole. The basis of judgements made as to the purposively selected sample is laid out in Chapter 4B (Section 4.6).

#### **1.7.7.5 Number of Interviewees**

In determining the number of interviewees, a balance needed to be struck between number of interviewees and depth of interview. Janesick (2000) advises against deciding whom to interview based on a pre-determined number of interviews, and suggests the aims of the study itself should determine how many and who to interview. Alvesson (2003) notes that a high number of interview reports does not necessarily guarantee absence of bias: the interview sample, unless truly random, may merely capture many people who have undergone a similar training, or who are otherwise thinking about their field in the same way. The intention was to gather a spread of critical insight from the most illuminating valuable sources in the field, as espoused by anthropologist and close associate of the strategic foresight field, Mary Catherine Bateson (Bateson, 1989). It is claimed that the research represented here is a valid spread of different approaches and “communities of

interpretation” (Cunliffe, Luhman, & Boje, 2004), that is, has captured the spread of possible interpretation on this topic enough to reliably investigate the research question.

Potential interviewees were contacted by phone and-or email, in which the researcher introduced himself (where he was not already known to the subject) and his research role as a Ph.D. candidate at the University of Cape Town Graduate School of Business, explained the tenor of the research and the reason he had short-listed the recipient as a possible interview candidate, and requested their participation in the form of an interview at a convenient time. It was explained that the interview would be semi-structured in the sense of asking identical base questions of every interviewee, but also allowing the interview to pursue individually productive areas; and was to be recorded, both to facilitate accurate representation of the interviewee’s views and to allow the interviewer to think and respond unburdened by the need for copious note-taking, particularly in that the interviews were to be semi-structured, that is, demanding assiduous “real-time” listening and processing of responses and choice of further questions by the interviewer.

#### **1.7.7.6 Ethical Considerations**

Although there are no interpersonal ethical issues in this research area with regard to personal privacy or consent-to-study, there is in this topic area a need for consideration of (a) professional integrity and (b) company-private information and non-disclosure. To protect individuals or groups of people involved in the study, the

interview request sent to potential study participants therefore disclosed to each participant all relevant information as to the purpose of the study and the nature of their requested involvement, and notified them that the discussion (and recording of it) would be confidential, but that an academic publication in the form of this Ph.D. document and potential academically published papers would pertain. Interviewees were also told they had the right to be anonymous and have their names or statements remain confidential. It is noted that the information sought was not of a level of sensitivity such that it was expected that interviewees would choose anonymity for themselves or their organisations, as indeed none did. In the event of the interviews, inevitably some areas were approached that were “off the record”, and the write-up here has respected that wish. It can be stated here that nothing of consequence as regards making academic inferences with regards to the research question has been compromised in these occasional and very minor omissions of detail.

#### **1.7.7.7 Rigour in Evaluating Interviews**

Leedy & Ormrod (2009, 134) comment that subjects’ answers aligns as much “with what might or should have happened” as what did happen. For this and many reasons of subjectivity and bias, analysing the interview responses provided similar hermeneutic challenges to those recorded above in the discussion of project-document text analysis, and the observations and caveats recorded above were again relevant here, particularly recognition of the interpretative role of the interviewer (as, of course, present in positivist survey studies too, but not always

recognised.) Silverman (1993) advises that there is a potential in qualitative research for the researcher to seek confirmation of concepts and theories under testing, rather than looking for contradictions and alternatives. Above all, what is required is conditions set to validate and maintaining the validity and reliability of process, leading to outcomes that recognise but overcome the potential bias or vested interest of a qualitative research process. In quantitative research, rigour is often created through the repeatability of an experimental process (by the same or other researchers.) This form of rigour was not available within this research project, as it is not available to any researchers within the qualitative research process. However, Marshall & Rossman (1995) argue there is no possibility and therefore no requirement for qualitative research to be replicable. The best (and sufficient) that can be done is render the processes adequately available for inspection. In this spirit, the research here—the process by which knowledge is arrived at—is made fully accessible to the reader, as reflected in interview transcriptions made by the research in Chapter 4B, based on interview audio that remains available and subject to inspection. Rigour in the qualitative assessment of the interview texts is also achievable through researcher attention to interpretive awareness and sensitivity, and in this spirit, recognition of interviewee subjectivity and personal or organisational orientation in interview responses is reflected in the interview transcriptions.

#### **1.7.7.8 Triangulation**

Another way of adding rigour to qualitative findings and interpretations is by



triangulation of findings from a variety of sources or through a variety of methodologies. The point of triangulation is to follow independent sources or methods that address themselves to the research problem at hand, to see if they all return similar results despite differences of process or origin. It is widely held by research theorists (Marshall and Rossman 1995; Janesick, 2000; Yin, 2009) that triangulation offers a means by which observations and interpretation can be validated by cross-checking results or interpretations using multiple methods. According to Golafshani, (2003), triangulation does not necessarily require using completely different research methods; it can be achieved by using different data collection or analysis processes. For instance, he suggests that validity and reliability is achieved if a case study observes, interviews, and records. The case studies in the following chapter were created similarly, via document-analysis, interviews, and careful recording of evidence. More generally, the triangulation approach was pertinent in this study: indeed the study was built from the ground up to create triangulation by finding and comparing multiple sources of information across sources that ranged from project-documents, to case studies, to interviews, across project types and respondent types; that is, specifically avoiding dependence on a single information collection method or type of source.

Janesick (1998) lists five basic types of triangulation, four of which are attributed to Denzin (1989):

- Data triangulation: the use of a variety of sources of data in a study
- Investigator triangulation: several researchers or observers are used
- Theory triangulation: various theoretical perspectives are used to interpret the

data

- Methodological triangulation: the use of multiple strategies within a method or different methods to study a single problem
- Interdisciplinary triangulation: use of different disciplines to broaden understanding of method and substance.

In this research, investigator and theory triangulation were not applicable. There was only one investigator and therefore no possibility of triangulating findings in project-study or interviews. Similarly, while the researcher was specifically looking to avoid applying any theory or theoretical bias, such bias of theoretical perspective that may tacitly have existed could not be triangulated owing to the presence of just one researcher. On the other hand, data, method, and interdisciplinary triangulation were achieved by (a) choosing project-document from across the scenarios field, and similarly (b) interviewing subjects from different backgrounds and perspectives.

\*\*\*

## **Chapter 2: Theoretical Review**

## 2.1 Overview

This chapter reviews the pertinent literature and key debates in the academic literature pertaining to scenario planning, as applicable to the research terrain and purpose of study outlined in Chapter 1. The perceived benefits and limits, and best uses of scenario approach in general, with reference to shortcomings of existing forecasting and planning models and allied organisational failure are elaborated, and issues relating to the categorisation of alternative scenario methods are reflected upon and are related to the research question. Academic criticisms of various elements of scenario planning are reflected, along with an allied discussion of current typologies of scenario planning, which readies us for the case studies and interviews ahead—that investigate real-world scenario practice as a basis for advancing these debates via advancing understanding the framing conditions of alternative purpose platforms and constraint conditions in limiting the extent of scenario validity and therefore best use of scenario approaches. The following chapter (Chapter 3) takes a longitudinal view of the history and evolution of scenario planning, which is necessary to complete the academic context upon which to develop the findings and argument of the dissertation.

In proceeding with this theory review, the researcher notes the proliferation of debates and taxonomies, and justifications thereof, in the scenario planning field, and how the literature reveals a large number of different and, at times, conflicting definitions, characteristics, principles and overlapping methodologies—as reflected

by Bradford et al (2005, 796), who describe the field is one of “methodological chaos”, and Dator (2009b) who notices considerable confusion within the futures field (generally) about the meaning of terms—and concurs with these authors and others who have remarked that there appears to be virtually no area in scenarios on which there is wide-spread consensus. Mason (1994) observes that the term “scenario” has become as ill-defined as the term “strategy”. According to Khakee (1991), few techniques have given rise to so much confusion as scenarios. The situation is not helped in part due to the broad church of underlying foresight and decision-enhancement practices that claim a relationship with the scenario method, including planning, forecasting, organisational learning, scanning, and visioning, and further because the methodology is inserted into a broad set of work streams, including innovation, strategy, risk assessment, and crisis management. Desmerais (2000, 82) observes that in a single book Schwartz (1991) uses the following broad dispersion of overlapping and potentially contradictory definitions of scenarios:

- “A tool for ordering one's perceptions about alternative future environments in which one's decisions might be played out,
- A set of organized ways for us to dream effectively about our own future,
- Stories built around carefully constructed plots that make the significant elements of the world stand out boldly, and
- Vehicles for helping people learn.”

and notes that this confluence of different definitions is a source of confusion for practicing managers. Burt (2010) observes it is possible to derive a range of views

of scenario planning, from scenarios-as-grounded-speculation to scenarios-as-organisational learning, to scenarios-as-sense-making and becoming, and notes “the confusion in the literature between these views does not help managers.”(2010, 491).

Understanding the field as fairly young and emerging, with attendant theoretical “chaos” is the first step on the road to achieving the aims of this chapter, which is to encapsulate the key dimensions of the debates that exist in the academic literature, and relate this to the research question, in order to provide the academic context for presenting and analysing the research that follows. In the next section (2.2), the commonly held benefits of scenario planning are considered; Section 2.3 looks at problems perceived in the method, and Section 2.4 reflects discussion of scenario typologies and taxonomies. Section 2.5 relates these dimensions to the research question.

## **2.2 Purposes and Benefits of Scenarios**

The purpose and benefits of scenarios are various and closely intertwined. In enumerating these benefits, as described in the practitioner and academic literature, two choices have been made. First, there is close focus on the original statement of a benefit, to avoid repetition where the original has been much-repeated over time; second the benefits and purposes are parsed into various separate sections, but the clear understanding is that these are tightly interrelated: for example, challenging mental models is a facet of organisational learning and it is intrinsic to achieving decision robustness—however these features are, for clarity, dealt with in separate

sections here. It is also necessary to say here, by way of introduction, that accuracy of scenarios with regard to the actual outcome of events (prediction correctness) is, following universal consensus in the literature for reasons explained below, *not* suggested as a benefit of the process. Accurate prediction is impossible in a system of any real complexity. Scenario work perceives predictive success, where it occurs, as lucky happenstance, and instead counts success rather in ability to correctly identify forces of change and conceptualise in advance the resultant spread of alternative future outcomes, none of which is predicted.

### **2.2.1. Strategic Effectiveness and Decision Enhancement**

This section discusses the benefit that scenario planning offers in enhancing the perception of and responsiveness to emerging challenges, including improving decision processes, avoiding surprises and generating robust strategies. The benefit of innovation and ideation is discussed in Section 2.2.2 below.

#### **2.2.1.1 The Limits of Quantitative Forecasting**

In order to understand the strategic effectiveness of scenario planning it is necessary to address the limits of quantitative approaches thinking about the future. As described in the next chapter, scenario planning emerged as a revolutionary method of doing industry foresight because its *raison d'être* ran counter to existing, traditional, quantitative planning approaches. The 1960s and 1970s were the heyday of classic “long-range planning”, where foresight was typically the province of a head-office strategic planning department whose culture of thinking ahead was

to research statistical trends in recorded data and make forecasts by extrapolating and modelling data. The founding premise of this approach was that planners could make accurate predictions of the future (at least better than those of their competitors) based on good data and good systems to forward-model it. This transitioned into planning by mathematically evaluating and ranking decision alternatives against decision objectives, the aim being to find a quantitatively verified “best option”, that provided the highest value future at the lowest risk.

The method allows for some uncertainty, via the introduction of probability, and part of the role of the analysis is to verify having correctly determined the probability distribution of future events: the predicted future being, by definition, the most probable. It retains, however, the fundamental assumption that the future will resemble the present along important dimensions (typically slightly better or slightly worse), which is always implied when using past-data extrapolative modelling as future-predictive. On this issue, renowned strategy theorist Henry Mintzberg has said (1993) that predictive forecasting embraces “the fallacy of predetermination”. Conway (2005) suggests that in strategic planning the “authority of the past” is dominant. Insights about the future derived from data about the past and present do not take into account what might happen, only what has happened, and what is happening. Various commentators have observed that without explorations of the future to deal with possible (new) realities, strategic planning rests on an “official future” based on the present. This appears to be a satisfactory mode of planning—until unexpected events undermine the foresight completely.

Expanding on the implications of this, then Head of Group Planning at Royal Dutch Shell, Pierre Wack (1985a, 73) comments:

“Forecasts are not always wrong; more often than not, they can be reasonably accurate. And that is what makes them so dangerous. They are usually constructed on the assumption that tomorrow's world will be much like today's. They often work because the world does not always change. But sooner or later forecasts will fail when they are needed most: in anticipating major shifts in the business environment that make whole strategies obsolete.”

#### **2.2.1.2 Determinism and Irreducible Complexity**

To fully understand the role of scenarios in compensating for the failures of predictive modes of foresight, it is necessary to consider more fully what predictive planning models are actually up against—which causes them to fail in situations of medium or high uncertainty. This is the problem of irreducible system complexity and the inherent inability of deterministic prediction to adequately capture future elaborations of current complexity. The author of this thesis has written (Gordon, 2010) that future-predictive systems fail because they endorse the fallacious assumption that human and social situations are deterministic, that is, situations where the same inputs under the same conditions will always lead to the same outcomes—that fixed relationships determine the relationship between present and future states, as occurs commonly in the pure sciences. In other words, in much of pure science and biology, given certain starting conditions and known forces, a future outcome event is determined: if we heat water to a hundred degrees Celsius, it will boil. In the 18th century, social theorists thought the laws of human behaviour were similarly deterministic—that a "science of society" was possible—and they set



about uncovering these laws. It has since become clear many times over that deterministic laws governing human society don't exist. Drawing a line under this science-of-society debate, philosopher Karl Popper pronounced, in the preface to his *The Poverty of Historicism* (1957): "There can be no prediction of the course of human history by scientific or any other rational methods... We must reject the possibility of social science that would correspond to theoretical physics."

Attention to the problem of accounting for multifactorial situations and complex interactions between many often not fully known or understood variables, and how this renders extrapolative predictions impossible, is provided by Duncan (1992), where he categorises the intractable issues that must be solved to get to reliable modelling algorithms—and therein good predictions—into four categories: Shape, Thresholds, Interactions, and Lag.

- Shape refers to the mathematical form of the relationship between input variables and outputs (the future predicted). In reality the shape may be anything on a continuum between a simple straight-line relationship to one that requires half a page of algebra to account for it.
- Thresholds are discontinuities in relationships, the points where the effect of an input factor suddenly changes. All values below a threshold may be zero, but above the threshold the input factor influences outcomes suddenly and-or greatly, and may cause a system to change entirely or collapse. Similar attention to the confounding roles of thresholds is offered by Batchelor (2009) in discussion of catastrophe-theory models, where a key variable falling below

a critical value leads the whole system to respond in a way not predicted by a linear model.

- Interactions are present when the effect of a factor depends on the values of one or more of the other factors. This is the "everything affects everything" problem, where ability to forecast is commensurately reduced as the number of interconnections and interactions rises.
- Lag takes place when output is affected not by the current value of a factor but by an earlier or later value, raising the problem of how far back to go in considering the future effect of input factors. (Lag itself may be subject to interactive or threshold effects.)

Duncan reflects that, in any social system (non-deterministic system), each of these four categories of factors is *unknowable in itself*, let alone in combination with each other, making outcome possibilities effectively unlimited, and therefore prediction impossible for any complex system. Other ways of expressing irreducible complexity have also gained currency. In a famous early formulation, Rittel and Webber (1973) proposed the concept of intractable "wicked problems" in describing situations that have incomplete, ill-defined, or contradictory interdependent variables. (For a normal problem there are solutions—which may be difficult to find; for a wicked problem there are no solutions.) In the 1980s, chaos-theory analysts such as Gleick (1987) postulated immense sensitivity to changes in initial conditions, the so-called "butterfly effect" where events can lead to widely differing outcomes when fully played out. A chance word or stray bullet can

change history. As billions of small changes are happening around us all the time, it is therefore impossible to predict future outcomes to any reasonable standard of performance. In this, scenario planning is very much a kindred spirit of the Chaos and Complexity theories that gathered steam from the 1980s, sharing the perspective that, for all future analysis beyond the short term, the multiplicity of forces that shape the future and the complexity of their interactions make the relationship between cause and effect in complex systems effectively unfathomable, and therefore unpredictable. Ogilvy (1992, 41) tartly sums up what the foresight field has learnt in this regard: " Forget about the laws-and-causes approach toward a predictive science."

The theoretical literature is therefore unambiguous and definitive in establishing the irreducible complexity of human and social situations, and therefore their irreducible unpredictability. This has enormous implications for organisational planning, for those who are willing to see them. Pre-eminent in this regard was Wack who argued (1985a) the way forward for managers is *not* to attempt to do better forecasting. No single "right" projection can be deduced from past behaviour. Too many forces work against the possibility of getting the right forecast. The challenge is to accept uncertainty, try to understand it, and make it part of management thinking. In other words, the planning process must be congruent with an unpredictable world: it must be a non-predictive investigation of important uncertainties facing the organisation, which embraces complex and multifaceted situations rather than wishing them away. Briggs et al (2007) comment that scenario analysis has emerged as a particularly useful tool for considering the

complex linked development trajectories of ecosystems, ecosystem management, and human well-being, also known as social-ecological systems, that is, systems at an extreme level of complexity.

#### **2.2.1.3. Overcoming Decision Failure**

The role scenario planning may play in promoting better management decisions has been prominent throughout the history of communicating scenario purposes and benefits. Kahn (1967, 6) defined scenarios as “hypothetical sequences of events constructed for the purpose of focusing attention on causal processes and decision-points”; Godet (1996, 164) citing the “futuribles” of Bertrand de Jouvenel, described the rationale of scenarios as “to illuminate the choices of the present in the light of ‘possible futures’,” while Parson et al. (2007, 1) calls scenarios “a description of potential future conditions, developed to inform decision-making under uncertainty.” Moving the debate further, Van der Heijden et al. (2002) draw the link between planning failure and real-world organisation failure, citing the “Sharpbenders” research of Grinyer et al (1989). Commenting on this research, van der Heijden et al. determine that failure in businesses (or organisations of any type) occurs for one or both of two different fundamental reasons. The first is operations failure, that is, failure to successfully implement a good decision because of poor execution. This is sometimes known as “hygiene failure”. The other type of failure is failure of strategic direction and-or timing. Here an enterprise is operationally excellent but fails because it proceeds in the wrong strategic direction (or the right direction at the wrong time). Failures of direction and timing occur when senior

managers miss changes in their operating environment. What worked yesterday no longer works today, which in turn implies a lack of management acknowledgement or exploration of contextual changes, and-or poor understanding of how these impact the sector environment. A shift in the operating environment makes whole strategies obsolete no matter how well executed.<sup>8</sup>

As described above, classic strategic planning strongly implies linearity and incremental change. It is therefore unsuitable in preparing managers for significant category- or step-change in the external (market, or technology, or legislative, or industry) environment. In practice, it is therefore unsurprising that predictive strategic planning, and point-forecasting, has been associated with failure to foresee contextual shifts—direction-and-timing failure—not only at Shell, as described in Chapter 3, but in many similar corporations. In a move that has become the iconic event in the history of strategic planning, Jack Welch, when he became CEO of General Electric in 1981, fired the strategic planning staff and scrapped the company's strategic planning function altogether. Conway (2005), citing Sidorowicz (2000), comments that the apparent failure of corporate strategy even after extensive planning, and the inability of many organisations to read signals in the external environment, implies existing planning models fall short in concept as well as execution. Moreover, predictions of this sort have been shown not only to fail in complex environments, but to fail by many orders of magnitude, particularly when

---

<sup>8</sup> One of many similar examples is the case of Fiat Auto, a successful car company in tariff-protected, Cold-War Europe, which found itself surprised and confounded by tariff protection changes in its operating environment after the end of the Cold War in 1990. The nature of the operating engagement changed very significantly, Fiat was unprepared for this, the company all but collapsed and 15 years later has only finally recovered. "Fiat Auto: The Italian Giant in Trouble", ICAFI Centre for Management Research. Business Case Study 303-085-1.

looking beyond the short term (Schnaars, 1989; Sherden 1997).<sup>9</sup> All this suggests the foresight approach itself, rather than its execution, is wrong—and has directly informed the rise of “anti-predictive” foresight—of which scenario planning is the most evolved and well-known manifestation. It is therefore fair to say that scenario planning was born as a response to the failure of point forecasting, as a remediation of existing ways of planning. (Ogilvy, 2002; van der Heijden, 1996; van der Heijden et al., 2002).<sup>10</sup>

#### **2.2.1.4 Promoting Strategic Robustness**

Van der Heijden et al (2002) describe the benefits of the scenario method in terms of a “wind tunnel” (such as may be used in aerodynamic engineering). Each scenario is a wind tunnel for an organisation’s strategy and decision-making, meaning whatever decisions, intentions, or options are pending may be tested in each scenario “as if” enacting them in that future operating environment, to see if they would be good decisions or otherwise generally stand up to the demands of that future, were it to emerge. In this formulation of scenario benefit, scenarios are the articulation of different paths along which future may unfold, so that managers can explore implications and consequences, and so avoid surprises and create or exploit opportunities or design strategies that are robust against a range of potential outcomes (none of which are predicted). In fact, scenarios point up robust decisions:

---

<sup>9</sup> For detailed studies of forecasting hubris, see Gordon, A., “Future Savvy”, Amacom, 2009; also Schnaars, S., “Megamistakes”, Free Press, 1989; and Sherden, W., “The Fortune Sellers”, Wiley, 1997.

<sup>10</sup> Ratcliffe (2002) observes the increasing interest in the scenario methodology as part of a wider attention given to techniques and approaches that embrace complexity and eschew determinism, such as Delphi technique, cross-impact matrices, environmental scanning, systems thinking, network analysis and simulation modelling.

by definition those that would lead to successful outcomes in each of the full spectrum of envisaged different future scenarios are robust decisions. Robustness-testing against alternative scenarios makes strategic decisions as "future-proof" as possible, including showing where necessary hedges and insurances need to be put in place. Robust strategies may be assessed either qualitatively (van der Heijden, 1996; Mercer, 1997; Dewar, 2002), or quantitatively (e.g. Lempert et al., 2004, modelling environmental robustness to climate change scenarios).

Cornelius et al, in "Three Decades of Scenario Planning in Shell" (2005, 99) give insight into how this wind-tunnelling process works in practice:

"With the global scenarios setting the macro-economic framework, the strategic funnel is then narrowed further by analyzing demand trends in individual energy markets and the strategic behavior of Shell's competitors... At the project level, it must be demonstrated that a particular investment is sufficiently robust against both the global scenarios and the supporting focused scenario. For instance, could abrupt changes in the regulatory framework make a project obsolete? To what extent could changes in the geopolitical landscape affect production and transportation? To what extent could demand shifts affect the economics of a project?"

### **2.2.2. Innovation: Stimulating New Ideas**

Robustness is the defensive aspect of preparing an organisation for step changes and surprise events. The flip side is taking advantage of such changes to create new initiatives. Wack (1985b, 146) refers to this use of scenarios as "entrepreneurial—discovering strategic options of which one was previously unaware". According to van der Heijden et al. (2002, 22) overcoming thinking limitations through

developing multiple futures is a competitive advantage to the firm in that it enables “businesses to avoid conventional approaches that may be easily predicted and parried by a competitor, allowing new business ideas to be invented instead.” Burt & van der Heijden (2003) propose that the idea of multiple futures naturally stretches and widens managers’ viewpoints and opens up the possibility to explore imaginatively the possible impact of contextual driving forces in the markets, which is impossible to achieve if only one forecast is tabled. The enhanced perception of potential future operating environments stimulates management to determine best responses for each, some of which may inspire new offerings or new business models, or engender innovation along other dimensions.

#### **2.2.2.1 Reification**

The attribute of the scenario process that directly fosters innovative thinking is the “reality” of scenarios. In contrast to standard planning numbers and graphs, scenarios tell stories with characters, events and timelines. In this, the process provides a reification of elements that usually remain abstract in other forms of planning. It also draws many complex elements into one narrative, which perforce leaves *out* many items that would clutter delivery of the message. In this, scenarios achieve clarity of communication compared with the abstraction and at times paradoxical detail that hampers many conventional planning formats. In strategy there is always a balance to be struck between detail and perspective, and scenarios, which are vehicles of perspective, reify abstract planning situations to decision-makers, making future possibilities seem more “real” than trend lines or numbers



on a page. These attributes of the scenario process often lead to an “aha” moment, where decision-makers suddenly arrive at a composite understanding of the elements and demands of a new (future) environment because they have effectively been inserted into it. This immersion stimulates opportunities assessment and creative-innovative responses thereto. Burt & van der Heijden (2003) relate this innovativeness to the greater confidence in the face of uncertainty and ambiguity that scenarios provide: a confidence that derives from having “experienced” important dimensions of the future operating environment.

#### **2.2.2.2 Empowering Non-dominant Voices**

Many organisations struggle to fully harness their internal resources in the sense of unlocking what employees and stakeholders know, particularly where this knowledge threatens conventional wisdom or entrenched power blocs. Roxburgh (2009) remarks that in large corporations there is typically a very strong status-quo bias: large amounts of time and money, and many senior executives’ entire careers may have been invested in the core assumptions underpinning a current strategic path, which means that challenging it is unwelcome. Scenarios, however, allow companies to break out of this trap by providing a freedom (the freedom of a hypothetical future), to propose new operating environments in which current management assumptions are no longer valid. This allows an organisational “safe haven” for contrarian or creative thinking.

### 2.2.3. Challenging Mental Models

Whether improving management decisions through promoting robustness to change and surprise, or through promoting identification of innovation opportunities, scenarios play a key role in challenging managers' mental models. Managers operate from maps or models in their heads about how the world works (Wack 1985a). These maps are helpful when they are accurate representations of reality, but dangerous when they are incomplete or inaccurate. In Wack's terms, scenarios drive managers towards a "reperceiving" of present conditions. He wrote (1985a, 84):

"Scenarios deal with two worlds; the world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision-makers. Their purpose is to gather and transform information of strategic significance into fresh perceptions."

The inherent multiplicity of outcomes that are implied in alternative scenarios is in itself a challenge to any "groupthink" consensus about the future operating environment that may exist in the minds of managers. In other words, a manager's "default scenario" is cast as just one outcome among many. The manager becomes aware of the key assumptions that underlie his or her expected future, exposing blind spots that might otherwise be overlooked. Following Weiner & Brown (1997) this researcher, (Gordon, 2011) has written that alternative scenarios help to overcome managers' "educated incapacity", that is, the paralysis of default-scenario perspectives and business-as-usual assumptions that assails industry insiders. They also specifically widen perceptions of factors relevant to an enterprise's success to

include those that lie outside the day-to-day organisational and industry concerns, challenging the comfortable notion of profiling the future by varying one or two known key variables—that is merely effect a “sensitivity analysis”. Hamel and Prahalad (1994a) describe how most managers focus their time inwardly, and on day-to-day events. Burt and v.d.Heijden (2003) remark that this inward-looking and problem-solving mindset is exacerbated in a turbulent business environment, or crisis management situation, where management copes by filtering out much of what is going on outside the organisation (where the largest threats and opportunities lie). Scenario planning addresses these problems by refocusing management attention onto exogenous factors, and therefore towards preparedness at this level.

#### **2.2.3.1. Memories of the Future**

Cognitive psychologist and Nobel laureate Daniel Kahneman (2011) summarises a long tradition in psychology that recognises that the human mind is far more likely to perceive phenomena it has been primed towards. Multiple studies have shown that, for example, a person has been shown an image of an ice-cream is more likely to remember the words “cold” and “ice” and “milk” and so on, in a random list, than a person shown a picture of a baseball cap. In the same way, scenario planners beginning with Wack, and through the Shell Group Planning tradition and beyond, have considered scenarios to be valuable primers—once managers have seen a potential future evolution, they will be more ready and able to see it early and clearly if and when it begins to evolve in reality. Mental rehearsals or “memories of

the future” function therefore as cognitive priming that helps managers pick up subtle cues from the environment where they may not have otherwise seem to have had relevance, and so enhance management’s early and correct cognition of changes in the operating environment. Wendell Bell’s latest book “Memories of the Future” (2012) makes the case for the role images of the future play in shaping the future that emerges.

#### **2.2.4. Strategic Conversation and Organisational Learning**

A commonly perceived benefit of scenario making is its virtue in surfacing important discussions among decision makers. In this regard, scenarios (both the construction and use of) are seen to provide a vehicle for structuring and facilitating participation in collective thinking, shared sense-making, building a shared understanding of key concerns including a deep understanding of business environment drivers, developing a common strategic language, and aligning and communicating strategic perspectives across the organisation and beyond (Biggs et al, 2007). Further, it is commonly held that through scenario thinking, managers may also better be able to locate the source of disagreements that often occur because they are envisaging and making decisions based on different scenarios of the future without realising it. In the terms of van der Heijden (2005), the increased knowledge sharing and communication among managers is referred to as an enhancement of “the strategic conversation”.

This benefit is closely tied with the process of developing a “learning” organisation, in the sense encapsulated by Senge (1990). The alignment of scenario process and

organisational learning runs solidly though scenario theory, most clearly articulated by Shell executive Arie de Geus in his book “The Learning Organisation” (1988). Within the learning perspective, some analysts even see the actual product of a scenario planning exercise (the scenarios output itself) as less important than the discussions that must have happened in order for them to be created. The implication is even if the scenarios are of low value as forward-planning resources in themselves, this does not nullify the utility of the method because valuable conversations will nevertheless have been had, thus the quality of the strategic conversation will still have been improved. Desmerais (2000) citing (Fiol & Lyles, 1985) sounds a cautionary note that despite general consensus about the idea of organisational learning and its critical role in developing a strategic fit between an organisation and its environment, organisational learning is its own considerable and complex field, and no model of organisational learning is widely accepted.

### **2.2.5 Aspirational Benefits**

There is a significant body of work that sees the benefit of scenarios in facilitating the emergence of a vision of a better future for an organisation or its stakeholders, or society at large, and inspiring actions towards it on the part of the organisation or a collection of stakeholders.<sup>11</sup> While still outlining a non-predicted spectrum of plausible situations that could emerge, i.e. not predicting the future, aspirational (or

---

<sup>11</sup> This body of work has most clearly been articulated in various essays since the 1980s by Jay Ogilvy, the most important of which are collected in “Facing the Fold”, Triarchy Press (Ogilvy, 2011).

“visionary” or “normative”)<sup>12</sup> scenario planning particularly orients itself in describing how a desirable (or undesirable) future can emerge from the present. Ogilvy (2002) presents this purpose of scenario planning in the context of how the world is changing, and how interest groups of all kinds can and do shape the future, and therefore how it can be changed for the better (guided by a preferred future). In an earlier work he comments: “The point is not to predict and say, yes it will, or, no it won't. The point is to imagine what it might be like as a way of anticipating possible moves for the human spirit. 1992, 31). Bezold (2009a; 2009b) has coined the term “aspirational futures” to describe the use of foresight tools, including scenario methods, in articulating a group or institution’s preferred outcomes. Jerome Glenn (2003, 4), Head of the United Nations Millennium Project summarises this approach to scenario-based foresight this way:

“Although it is not possible to know the future, it is possible to influence elements of it. The forces of nature, social and political dynamics, scientific discovery, and technological innovation largely determine the future. However, human choice increasingly shapes the future.”

Similarly, Ratcliff, (2003) sees scenarios as a tool for discussing and weighing preferred outcomes, which allows different stakeholders to further their agendas

---

<sup>12</sup> As has been noted in Chapter 1, scenario planning is a fairly young discipline. One of the implications is that the terms for different aspects of the discipline are unstandardised. “Normative scenarios” is a term developed by the French school, Berger, de Jouvenel, and Godet, as described in the next chapter, to refer to scenarios of the aspirational or visionary or advocacy type. Due to inherent definitional slippage and confusion over the term “normative” in English, this term has lost the currency it once had. As explained in Chapter 1, this dissertation has evolved the compound term visionary-advocacy to refer to aspirational scenario work, but in this literature review section (Section 2.2.5), the terms “visionary” and “aspirational” and “normative” are used, to remain close to the literature and to avoid possible error of assumption as to the academic intentions of other theorists.

and their respective hopes and fears in defining the preferred outcome for the organisation. In other words, this category of scenario benefit prioritises the question “what do we want?” rather than “what could happen?” and works towards clarity and consensus on actions which will bring the desired future closer. In this, scenarios are also seen to foster comprehension of and empathy towards other stakeholder groups’ visions for tomorrow, and part of the benefit of the method, as applied in a visionary or aspirational way is that the process demands and facilitates a conversation amongst possibly divergent stakeholders, and similarly demands and facilitates discussions about what the goal of the organisation (or wider group) should be going forward. To this end, scenario practice can be used to draw together groups who hold potentially divergent interests to collaborate towards narratives that inspire hope or represent consensus aspirations and consciously sets out to negotiate and articulate a collective, collaborative view of a preferred outcome, which finds resolution in forward momentum towards influencing the future in the direction toward this outcome. Markley (2007; 2012) has developed “guided cognitive imaging” techniques that allow individuals or groups to develop mental images of preferred outcomes.

Among the practitioners most closely associated with developing scenarios to manifest this benefit is Adam Kahane, who was the facilitator of the “nation-building” Mont Fleur scenarios in South Africa in 1992, among others. Kahane (2001, 1) states:

“The purpose of a civic scenario project is to build the leadership to change the course of a country's history. A group of influential leaders—a microcosm of the society, representing all the principal stakeholders—works together to

uncover what has happened, is happening, might happen, and should happen in their country, and what they must do—what they cannot not do—to enact that vision. Through a structured process of action and reflection, with each other and with other societal leaders, they build the shared understanding and commitment necessary to bring forth a better future.”

It is for this reason that one of the hallmarks of visionary scenarios is widespread publication and dissemination: to publicly disperse the shared preferred outcome as widely as possible, as discussed following the findings of the research presented in this dissertation, in Chapter 5 (Section 5.4.2).

Kahane (2001; 2010) has isolated a number of common core benefits associated with the larger visionary-aspirational benefit:

- **Broadened networks of relationships.** Future influence and societal change cannot be effected by one person or institution alone. To gather the resources for this kind of change requires broad alliances, which in turn implies a shared perspective: a common mental model and common ground in aspirations. The scenario process helps build this shared understanding and common ground.
- **Building consensus and shared commitment to the future.** Scenarios of this form give stakeholder representatives a role in planning. Because a number of possible futures are created and many perspectives can be included, the discussion can move beyond current fixed positions. The process forces decision-makers to merge their thinking about the future and



promotes dialogue in articulating and sharing outputs with others who have different perspectives.

- **Regenerated energy and commitment.** Achieving collective forward movement requires energy, which in turn requires hope. Scenario benefit may therefore be understood as manifesting and-or aiming to rekindle aspirational hopes.

#### 2.2.5.1 Aspiration as Social Critique

Visionary or aspirational scenario orientation and benefit, as reflected in the literature, is more than “just another” benefit category. In fact, it is often presented as counterpoint to other approaches in scenario work (or the foresight field more generally). Emblematic of this is Slaughter (2002, 28) who develops the notion of Critical Future Studies as a critique of the “American mainstream empirical tradition”, particularly:

- “its superficiality and lack of depth;
- its failure to recognise the roles of language, power and embedded social interests;
- its lack of understanding of its own sources and grounding;
- its routine appropriation (not only in the USA) by the powerful;
- its over-confidence in easy prescriptions; and
- its lack of openness to other traditions and other ‘ways of knowing’.”

Slaughter argues that standard approaches to scenario building “tend to accept current social reality as unproblematic, as just ‘being there’. They lack any notion of, or means of, operationalising critique or critical awareness. This means that

scenarios are readily assimilated into existing power structures, with all their inequities and dysfunctions, without anyone being aware of the fact.” (2002, 28) <sup>13</sup>. To escape this, scenarios need to evolve from “an attempt to explore diversity within the forward view” to “‘Social Constructed Futures’ that consciously and deliberately lead toward more humanly viable futures than those currently in prospect.” (2002, 30). A manifestation of social rather than individual construction is a key part of the transition to values-based foresight: the preferred outcome is one arrived at by consensual rather than individual (including individual company or organisation) process, that is, requires progress along such a path from individual to social capacity (Slaughter, 1996b). Ogilvy (1992) develops a similar position in describing the power of normative scenarios in their ability to articulate the force of widely accepted values and so transcend the relativity of individual opinion.

#### **2.2.5.2 Aspirational Benefits in Context**

It will be seen, as emerges from the research conducted, as presented in the following chapters and consolidated in the argument (Chapter 6), that the aspirational benefit of scenario planning is more than merely an additional benefit in a spectrum, but forms an alternative broader category of benefit in the sense that pursuing it comes at partial “cost”, or at least reorientation from, other benefits. At this stage, within the literature review, it is pertinent to record that the differences between broader benefit categories is reasonably commonly understood and reflected in the literature. For example, Borjeson et al., (2006, 86),

---

<sup>13</sup> Slaughter (2002) includes Causal Layered Analysis (Inayatullah, 1998) as an allied method in the Critical Future Studies critique.

within a broader analysis of scenarios orientation into various multiple categories, names “External” and “Normative” as two of the categories, in an explanation as follows:

“External scenarios focus only on factors beyond the control of the relevant actors. They are typically used to inform strategy development of a planning entity. Policies are not part of the scenarios but the scenarios provide a framework for the development and assessment of policies and strategies. The external scenarios can then help the user to develop robust strategies, i.e. strategies that will survive several kinds of external development. [...] How can a specific target be reached, is responded to by normative scenarios (where) the study has explicitly normative starting points, and the focus of interest is on certain future situations or objectives and how these could be realised.”<sup>14</sup>

Coates (2000, 116) provides a similar analysis:

“Scenarios as used in business, other organizations, and government planning fall into two broad categories. One is scenarios that tell about some future state or condition in which the institution is embedded. That scenario then is used to stimulate users to develop and clarify practical choices, policies, and alternative actions that may be taken to deal with the consequences of the scenario. The second form tells a different story. It assumes that policy has been established. Policy and its consequences are integrated into a story about some future state. This second type of scenario, rather than stimulating the discussion of policy choices, displays the consequences of a particular choice or set of choices.”

---

<sup>14</sup> The authors go on to add a pertinent distinction which is in line with the research results of this project: “Normative scenarios consist of two different types, distinguished by how the system structure is treated. Preserving scenarios respond to the question: How can the target be reached, by adjustments to current situation? Transforming scenarios respond to the question: How can the target be reached, when the prevailing structure blocks necessary changes?” (Borjesson et al., 2006, 86).

### **2.3 Criticism and Limits of Scenarios**

The previous section enumerated the benefits of scenario planning, as articulated in the academic literature. This section elaborates the shortcomings of the scenario planning method, as articulated in the academic literature, including criticism that reflects both practitioner (scenario facilitator) and user (scenario client) points of view. These criticisms provide an array of explanations for failures of adoption or inadequate use of the scenario tool in practice, or lack of follow-through to strategic decision-making, and are therefore directly pertinent to the research question and contribution to knowledge proposed in this dissertation, which seeks to address and solve category misapprehensions that stand in the way of effective scenario use, therein adoption.

The spectrum of academic and practitioner critique and self-critique over the 40 years that scenario planning has been in use is a vast archive. What follows here is guided by perceptions of limitations and caveats regarding the benefits of the method (enumerated above), and relevance to the research question.

#### **2.3.1 Overview Assessments**

It is common cause in the field that there is little formal evaluation of scenario work or studies towards to evaluate critically the factors that allow scenarios to be used successfully, or the impacts scenario approaches can have on organisational performance (Harries, 2003; Chermack, 2005). It is generally held that the studies that evaluate the effectiveness of scenarios, although few in number, have found

them to be useful (Glenn and Gordon, 2001) and little debate that the scenario workshop process improves decision-makers' understanding of the challenges they face and options for response, and have positive outcomes in terms of individual learning (Chermack, 2006). However, such findings do not represent academic verification as to the benefits of the method. Desmerais (2000) comments that scenario planning has received only a limited amount of critical academic thought and research, and that the discursive approbation of the scenario method has been led by practitioners: a few 'classic' stories from the corporate world are often cited as proof of its benefits. This criticism is similarly made by Goodwin & Wright (2001); Chermack (2003); and Cairns, et al., (2004), where it is pointed out that most of the journal articles published in this area are written by practitioners describing their own case experiences (Schoemaker & van der Heijden, 1992; Godet & Roubelat, 1996; Moyer, 1996; Mason, 1994; Wack, 1985a & 1985b); or by consultants describing their approaches and methods (e.g. Mason, 1994; Millett, 2003; Ringland et al, 1999). Because of the practitioner bias, it is perceived that descriptions of scenario planning benefits are often uncritical accounts where the authors and scenario practitioners are one and the same, with an obvious conflict of interest in evangelising the method, resulting in a promotional "look at what we are doing" evocation rather than critical analysis of the method. There is also the problem of author-practitioners blaming the client for project failure—typically the client problem being refusal to engage or buy into the process to the extent necessary to allow it to succeed (Hodgkinson & Wright, 2002).

One independent empirical study that set out to determine the effects of scenario use on organisational performance (Phelps et al., 2001) detected benefit in finding that in two British industries (water supply and IT consulting), scenario use correlated with increased profitability and returns on investment. Another evaluation study “Looking Back on Looking Forward: a Review of Evaluative Scenario Literature” (EEA, 2009) reviews 52 pieces of research on scenario planning, finding many positives in the method but a relative lack of adequate empirical study to support the claims made regarding the benefits of using scenarios, particularly in testing claims by comparing the performance of organisations that have used scenarios to those that have not. The study separates evaluative discourses within the scenario planning domain into five categories:

- Scenario typologies
- Assessments of what types of scenario work in different contexts
- Assessments of methods and institutional arrangements which enable organisations to use scenarios more effectively
- Reviews of impacts of long-term policy analysis on the decision-making process
- Analyses that evaluate the robustness of strategies over multiple scenarios

It finds that important work remains to be done in all five categories, but efforts in the second, third and fourth would address the most significant weaknesses of current understanding. The EEA study also observes that the literature assessing scenarios employs a variety of evaluative methods which are not necessarily

congruent, some drawing on general psychological understanding of human decision processes and biases, some reporting specific laboratory tests of impact on decision-making (e.g. Schoemaker, 1993; Chermack et al., 2006), while some refer to observations of decision processes within organisations. It suggests that there is evidence that scenarios can improve the robustness of decision-making, organisational performance and learning, but that they lose impact when identifying threats of marginal consequence or issues for which there is no workable response. Further, the study points to the need to draw lines between the needs of public and private sector scenario purposes, particularly in that it finds (2009, 10) public sector applications require “a more systematic connection” between scenarios and recommended decisions than do private sector applications, and often aim to build consensus or to foster a shared understanding within diverse multi-stakeholder settings—a specific contextual need to be accommodated. The EEA study also perceives that scenario exercises “often fail to realise their potential benefits because there is a mismatch between aspiration and supporting capacities” (2009, 11), that is, the aspirations contained in scenarios goes beyond the ability of the organisation to implement them. Issues related to implementation failure, and how these may be related to the matters addressed by the research question, are directly relevant to this dissertation, as tackled in question 6 of the interview set (see Chapter 4B, Section 4.8.1) and developed in the argument (Chapter 6, Section 6.6).

In another iconic criticism of scenario planning, Graham Molitor, a lifetime theoretician and strategic foresight practitioner, questions (2009, 81) “whether scenario dynamics added anything of significant value to forecasting efforts and

whether the output was worth the effort expended”. This criticism, along with comments and rebuttals, became the topic of a symposium at Tamkang University, Taiwan, in 2008, the proceedings of which are published as a stand-alone edition of the *Journal of Futures Studies* (vol. 13.3., February 2009). Listing things that can go wrong when scenarios are implemented poorly, Molitor comments that outputs become excessively conjectural, hypothetical, tangential, non-germane and unrealistic; that overbearing superiors may stifle and stymie free association deliberations; and transition from the workshop phase to the write-up involves crudification and possibly bias. Molitor’s critique also rests on determining that the amalgamation of techniques that scenario planning uses—brainstorming, impact analysis, lateral thinking, group input, story telling, etc.—are not new or unique. “There is a tendency to ascribe a uniqueness and coin new terms that repackage and reintroduce timeless techniques. When all is said and done, what scenarios are all about— dates far back into ancient history” (2009, 83). This criticism is fair, but perhaps polishes rather than dents the prestige of scenario work in showing how it manifests the fundamental, archetypal human approaches to managing complexity and solving problems related to uncertainty, which are timeless.

### **2.3.2. Client Adoption Issues**

Burt and van der Heijden (2003) identify three kinds of hurdles to corporate client adoption of the scenario method: (a) organisational culture, which they elaborate as the “dominant management” style, including (low) level of and commitment to strategic conversations (see Section 2.2.4 above); (b) client state of mind,



particularly intolerance of variety and divergence of thought, short-termism, and preference for incremental change; and (c) fear of engaging with the outside and of interacting with new possibilities. The study concludes that most of these hurdles originate in a lack of clarity of purpose, in other words, lack of a clear sense of specific outcomes sought by the company. (It should be pointed out that this determination runs more-or-less diametrically counter to the open-ended, exploratory benefits that scenario planning is valued for, as described above.) Burt and van der Heijden also isolate “fire fighting”—perceiving the need to manage the day-to-day running of the enterprise a more important priority—as a countering force in scenario adoption. Verity (2003, 186) offers the insight: “the very flexibility and applicability of scenario techniques appear to mitigate against their use”. By this she means there are many outcomes, and potential applications thereof, for managers to evaluate, so matching the methodology to the business issue or purpose underpinning the exercise is not straightforward. Curry (2009) holds that one of the problems with client adoption of the scenario method is, if it is well applied it produces far too much variety for managers to process effectively.

#### **2.3.2.1. Qualitative Methods as Barrier to Adoption**

Conway (2005) finds that the adoption of scenario planning is held back because it is strongly qualitative in nature, and relies on storytelling, so its acceptance as “valid” analytical thought in developing forward strategy is compromised. Partly this is due to unfamiliarity with rigorous qualitative thinking, and partly a preference for the (often illusory) security of the fixed answers provided by quantitative processes. Either way, the cultural preference in organisations for

“data-driven decision-making” creates a relatively hostile environment. Cairns et al. (2004, 223) comments similarly: “The central problem in scenario development, then, is the fact that aside from a limited set of tools, the task is essentially a creative one and the process is ‘more art than science’.”<sup>15</sup> On this topic, Desmerais considers the scenario process “highly intuitive” and comments (2000, 85): “it is highly improbable that two competing businesses would develop similar scenarios about the future of the driving forces.” (He however recognises this is true of quantitative forecasting too.) Speaking to the same perceived problem, Miller and Waller (2003, 94) suggest insertion of real options analysis into scenario work as way of adding quantitative rigour into the process. Goodwin and Wright (2001, 13) advocate multi-attribute value modelling as a way of meeting the perceived need for a formal evaluation process during scenario building—making the process benefits, or lack thereof, recordable and accountable.

In a related matter, the careful avoidance of ascribing probability to scenarios—a fundamental principle of the method, necessary in avoiding a predictive mindset—is also seen as a brake on general management adoption.<sup>16</sup> Millett (2003) argues that a stubborn avoidance of forecasting and prediction by “purist” scenario

---

<sup>15</sup> Cairns, et al. (2004, 231) negatively contrast “simple unstructured models based on intuition and reasoned judgment” with “highly sophisticated probabilistic algorithms and causal simulation models”.

<sup>16</sup> Mainstream scenario theory holds that scenarios should be designed to be diverse plausible pictures of the future, each with equal probability, and that managers should be discouraged from planning around one “because it is most probable” because that scenario then effectively becomes a (spurious) forecast. Any forward strategy must rather satisfy the total spectrum of the scenarios, because the future will most probably contain elements from all the scenarios. The pioneer in eschewing any probability assessment among scenarios, Herman Kahn, wrote (1967): “No scenario is ever probable; the probability of any scenario ever being realised is minute. Accuracy is not the measure of a good scenario; rather it is plausibility (a rational route from here to there); internal consistency; description of causal processes; and usefulness in decision-making.”

practitioners in their prescribed methodologies is a reason why the technique lacks popularity. It is difficult for managers to accept (or to be seen to accept) that uncertainty and risk cannot be determined in terms of probabilities. McKinsey analyst Charles Roxburg (2009) offers a palatability workaround whereby scenarios proceed along a base-case + variation(s) model, with probability ascribed to the base case, but comments that this view would not be accepted by scenario purists.

#### **2.3.2.2. Cost-Benefit Problems**

There is the commonly held and not unfounded view that a scenario process is expensive, absorbing large amounts of both time and money resources, particularly in that it is widely agreed that both broad engagement across the organisation and the introduction of external thought-catalysers is beneficial, all of which drives up costs. Millett (2003) finds that a scenario team might consist of 5–10 people who meet regularly, which, in addition to the call on other staff time, the cost of running workshops, and the price of external facilitators, suggests that costs could easily reach US\$ 600,000 for a six-month exercise. Verity (2003) determines that “the cost argument” is rational and hard to overcome. Intrinsic to the cost-benefit perception is the problem that many scenario projects do not have an adequate process for engaging executive teams in the scenario thinking, and that the ties between scenario-building and follow-on strategy formation are unclear. Molitor (2009) articulates a common practitioner counter-argument to this, that direct “use” is not necessarily the point of such undertakings. Working through scenario processes makes participants more fully aware of the contextual changes around

them and prepares the management mind in general, rather than being a problem-solving device. However, the unclear link between concrete benefit, particularly when linked to cost, remains a criticism of the scenario process and a reason for lack of adoption thereof.

### **2.3.3. Inter-practitioner Debates**

There is, as one might expect, a spirited debate among scenario practitioners as to the benefits of the scenario method as a whole, and the relative benefits of different methods. The following section captures the key elements of this; further related analysis occurs in the typology section below.

A core element of the *raison d'être* of scenarios is rendering visible marginal or less well-considered outcomes, forcing managers to face them. While criticism exists that scenarios are fantastical and without basis in quantitative rigour, on the other hand there is a stream of thought among practitioners that scenarios *underplay* the full range of uncertain outcomes, that is, are too timid in avoiding the real breadth and depth of plausible uncertainty. There are broadly two causes of this: (1) unintentional narrowing, where scope is reined in due to scenario practitioners' own lack of ability to approach truly unforeseen events. In this regard, Taleb (2007) comments that changes in human behaviour and values, the randomness of nature, technological surprises and so-called high impact, high uncertainty "black swan" events, are commonly outside the scope of the analysts' perception. The other reason has to do with the adoption problem elaborated above, which leads facilitators to dampen their elaboration of "stretch" scenarios to suit the client's

worldview. Glenn, (2009) sees a problem when scenarios are given to or adopted by participants who were not part of the formation phase, who may then see the scenarios as the "official set of possible futures" and hence, self-censor or limit their thinking to some degree. Postma & Liebl (2005, 167) hold that scenarios sometimes do not prevent management from being surprised: "It is striking how often situations occur that were simply not included or were excluded as 'logically impossible' or 'inconsistent' during the process of scenario building." Such situations, where the future view does not lie within the corridor of the various "extreme but consistent" projections, but rather beyond them, often remain hidden despite the scenario process. There is also a body of work that suggests that scenarios, while articulating plausible model worlds, intrinsically makes the view of non-articulated outcomes harder to see. Treanor observes: "futures scenarios are explicit rejections of other possible futures. [...] a small number of alternative scenarios is presented: they indicate the range of futures considered acceptable. In other words, the range of acceptable future(s) ... is made visible by the choice of scenarios."<sup>17</sup> He cites the Amsterdam Urban TVA project as an example, where the three scenarios all proceed from one (elite, urban) assumption base.

Various commentators have pointed to the intrinsic weakness of scenario projects where a "best case", "worst case" and "middle case" is presented, or when the process is based on too simplistic a variable, such as optimistic vs. pessimistic outcomes. The problem here is with the scenario formation—high, middle, and low

---

<sup>17</sup> <http://web.inter.nl.net/users/Paul.Treanor/few.futures.html>. Unpublished work. Viewed May 20, 2012

scenarios (or optimistic vs. pessimistic) typically manipulate one variable, effectively presenting merely a sensitivity analysis, which is a severe contraction of aspiration when compared to the richness of multiple-variable variation that scenario planning stands for. Further, a “middle” case draws the scenario user to prefer the middle case or emphasise it by default in forward planning. In this the credibility of alternative, unexpected scenarios is undermined.

#### **2.3.3.1 Limits of the “2x2” method**

Despite the ubiquity of the “2x2” method as a method of scenario construction, many practitioners consider that this construction format itself limits scenario richness and breadth of outcomes. In the 2x2 method, two “very” or “most” important uncertainties are isolated (typically via group process), and are then crossed on a 2x2 matrix (as inspired by the Boston Consulting Group’s four-box framework. For examples see projects analysed in Chapter 4.). This is the method associated with SRI International, and elaborated by both Shell and SRI alumni, for example Schwartz (1989), Schoemaker (1991); and van der Heijden (1996). Curry (2009, 120) observes the extent to which particular assumptions about early scenario building have become embedded: “Aspects of practice which developed initially because of contingent issues of practice in particular organisational or cultural environments have become inscribed as method.” Curry & Schultz (2009) observe that the “flatland” of many 2x2 matrix exercises in scenario building can be greatly enriched by using Causal Layered Analysis, or the Ethnographic Futures Framework, or Futures Wheels, to create more densely detailed story fabrics.

Further, Curry and Schultz (2009) demonstrate that the choice of method considerably influences what scenarios emerge, despite the same input conditions. The authors put a single set of project data put through four different scenario building approaches: the 2x2 approach; Causal Layered Analysis; Manoa method; and using Scenario Archetypes, to see if this produced significantly different perspectives on the future, which it did. By applying multiple methods to one dataset, Curry & Schultz go beyond comparison and classification represented in the typologies section (below) to show how choice of scenario-building process directly determines the orientation and richness of results obtained.

#### **2.4. Scenario Planning Typologies**

Since the rise of scenario planning as a mainstream planning tool, many academic authors have attempted to determine a classificatory system or “typology” of scenario work, to bring order to the methodological “chaos” of contested definitions and justifications perceived in the field (Bradfield et al., 2006). Borjeson et al comment that typologies are important for communicating, understanding, comparing and developing methods. “Without a common language among researchers, all those tasks become much harder.” (2006, 724).<sup>18</sup> The following section reflects the key interventions in the scenario typology field, and relates them to the research question. The typology debates, as reflected below, show—above

---

<sup>18</sup> It is important to distinguish between scenario typology—the classification of scenarios method approaches, as discussed here—and scenario archetypes or “generic” scenarios (common, repeated human or social narratives) as expressed for example by Schwartz (1991, 1992) or Dator (1996b). (Dator refers to 4 generic futures: Continued Growth, Collapse, Disciplined Society, and Transformation.)

all—the lack of an accepted typology of method, and therein the emergent nature of the field. They demonstrate the on-going, significantly contested debate over what scenarios’ spectrum of purpose is, and contested criteria of quality in scenario building and outcomes. For this reason they round out the benefits and weaknesses discussion above, and provide the final preparation for the case studies, interviews, and analysis to follow.

Most significant moves towards scenario typology have been made since the 1990s. However, Godet and Roubelat (1996) closely following a triptych codified much earlier, by Roy Amara (1981), as follows:

- Possible scenarios—everything that can be imagined;
- Realisable scenarios, —all that is possible, taking account of constraints;
- Desirable scenarios—which fall into the possible category, but which are not all necessarily realisable.

The distinction between “desirable” and all forms of other scenarios is a categorisation that closely approximates the visionary or aspirational view of scenarios, as discussed in Section 2.2.5 above. Godet (1996, 9) cross-cuts this with a probability determination to derive four categories—‘reference’, ‘trend-based’, ‘contrasted’ or ‘normative’ scenarios, explained as follows:

“A trend-based scenario, whether or not it is probable, corresponds to the extrapolation of trends at all points where choices are to be made. It is among the realizable scenarios which have a higher than zero probability that we find contrasted (unlikely) scenarios and the field of development where the most probable scenarios are found. As regards desirable scenarios,



these are found somewhere within the possible zone and are not all necessarily realizable.”

Borjeson et al (2006) observe Amara’s foundational influence in scenario typology thinking and point out others that have followed in this vein, particularly Masini (1993) who identifies three approaches: extrapolation, utopian and vision, and Dreborg (2004) who identifies three modes of thinking: predictive, eventualities and visionary. Borjeson et al follow this same framework in presenting six types, built on permutations of the categories probable, possible and preferable, adjusting the typology to emphasise how scenarios are used. Therein they identify three main categories of scenarios based on the principal questions the user poses about the future. These are: (1) Predictive—“what will happen?”; (2) Explorative—“what can happen?”; and (3) Normative—“how can a specific target be reached?” In turn, each of these categories contains two responses to the category defining question. In (1) the predictive mode may be (a) forecasting—what will happen; or (b) what if—what will happen based on condition of a particular specified event or events. Explorative scenarios (2) may be either (a) external—what can happen in the development of external factors or (b) strategic—what can happen if we (the scenario users) act in a certain way, that is, an exploration of the spread of outcomes of strategic choices. Normative scenarios (3) are either (a) preservative—how can the target be reached by adjustments to the current situation; or (b) transformative—how can the target be reached assuming a transformed contextual environment.

Heugens and Van Oosterhout (2001) put forward a basis for distinctions between scenario types along two dimensions: epistemological orientation and normative involvement. The epistemological dimension is a continuum between “Cartesian cognitive” where scenarios are tools for improving decision-making, but maintain a strong split separating thought from organisational action; in non-Cartesian scenarios this chasm between thought and implementation is crossed. The normative involvement continuum spans “passivity” at one end, where organisations regard themselves as “spectators” using scenarios for broad reconnaissance purposes only, vs. “activity” where scenario studies stimulate and develop strategic responsiveness.

A commonly referenced typology in the field is that of van Notten, Rotmans, van Asselt, and Rothman (2003) who propose a typology of scenarios based on three themes. The themes are (1) project goal: “the why”; (2) process design: “the how”; and (3) content: “the what”. Each of the themes is described as a spectrum. The goal theme spans a goal of “exploration and awareness” on one side of the spectrum to “decision support” on the other. Process design refers to a spectrum with “intuitive-qualitative” processes on the one side and “analytical-quantitative” methods on the other. The content theme spans “complex, multifaceted” scenarios on the one side and “simple” stories on the other. Across these three themes the authors refer to 14 characteristics, including items such as inclusion of norms (descriptive vs. preferred); vantage point (forecasting vs. backcasting); time scale (short term vs. long term); special scale (focused vs. global); nature of the data; method of data

collection, and so on. While this is an exhaustive analysis of the 17 cross-cutting ways that scenarios input or output can vary, the analysis remains very much at the level of description and categorisation of what exists, rather than connecting any of these spectra to purpose, and is laconic on accounting for the influence of the context of the scenario development process itself. Further, a feature-descriptive typology does not invite access to the deeper methodological influences, or their theoretical foundations, involved in various scenario approaches. Curry & Schultz (2009, 37) comment: “as a result, this absence leads to a difficulty for the typology to be used consistently as a framework for facilitating the judgement of the quality of scenario development processes and outcomes. Quality here includes conceptions of the scenario development processes’ contextual influences and the relevance of the approach and outcomes.”

Wilkinson & Esther (2005) offer a typology that distinguishes three types of scenario building approach: “problem-focused”, “actor-focused”, and “reflexive interventionist or multi-agent based” (RIMA) scenarios. Problem-focused scenarios set out to create accurate maps of the future that will enable others to reach a destination as reliably and efficiently as possible. Actor-focused scenarios invite stakeholders to help draw a map of the route that they need to take. The third category, RIMA scenarios, are those specifically designed for dealing with complex situations, for example the urgency of global environmental concerns that requires interventions that mobilize and sustain collaboration across different jurisdictions and worldviews. According to the authors, the third approach is a combination and enrichment of the first two approaches.

In a study closely allied to the scenario typology terrain, Bishop, Hines, and Collins (2007) note the typology work of van Notten (2003), and (Borjenson 2006) as well as the historical scenarios overview of Bradfield (2005) as pertinent in bringing clarity to the field. Bishop et al's contribution takes a slightly different format: they inventory and classify eight categories of techniques (23 individual techniques in all) as the base of foresight approaches found in scenario planning. In this they offer rigour by way of understanding common patterns of technique use that underpin apparently extremely different types of scenario work without proposing a typology of their own.

#### **2.4.1 Role of Typology in the Research**

It is understood that the investigations into the role of purpose of scenario practice, both in itself and with reference to its congruence to organisation context, aspiration and constraint conditions, as articulated by the research question, implies a potential contribution to the typology debates above. In the event, the research presented in the dissertation (Chapter 4) establishes the case for an overarching "meta-category" of purpose applicable in scenario planning, as argued in Chapter 6. The articulation of the findings of this study with the past and present debates within the field of scenario typology theory is recorded as a topic for future research (Chapter 6. Section 6.8.2).

## **2.5. Conclusion**

This chapter has investigated key debates in scenario planning theory, following the broad classification of (a) purposes and benefits; (b) criticisms and limits; and (c) classification-typology, all of which directly prepares the ground for the research presented ahead, particularly in that the research question is set up to investigate the role of categorisation (mis-categorisation) of purpose in its relation to organisational purpose or external constraint conditions as a possible cause of problems in the scenario method, the resolution of which may provide a route to amelioration of these problems. However, one further preparatory step is required before turning to the research: this is an investigation of the history of the field and its emergence and use by key theorists and well-known companies, which has had a defining role in formulating understanding of scenario purpose, and therefore merits direct consideration before moving to presentation of the original research. This is done in the next chapter, Chapter 3: History and Evolution.

\*\*\*

## **Chapter 3: History and Evolution of Scenario Planning**

### **3.1. Overview**

The previous section dealt with theoretical discussions in the literature pertinent to the research domain. In this section, the literature associated with the history and origins of scenarios is discussed, with particular reference to the early development and emergence of scenario planning as both a business and non-business (government; NGO) planning tool. This reveals founding contextual issues relating to the conceptualisation of the method, which strongly shape the field to this day, including framing current understanding of the purposes and limits of the scenario planning, which therefore has direct bearing on the research terrain. Consideration is given to origins both within the U.S. and Europe; early commercial adoption by Royal Dutch Shell; how Shell's experience has been foundational in the field in defining the original purpose and rationale of the method; and how this purpose changed in the hands of those same Shell originators when they brought the method to South Africa in the 1980s.

### **3.2 U.S. Origins of Scenario Planning**

The concept of scenarios is ancient: since earliest recorded time people have used scenarios as a tool for exploring the future of society and its institutions. Bradfield et al, (2005) comment that, in this context, scenarios have taken the form of treatises on utopias and dystopias, for example in the writings of the early philosophers, such as Plato's description of his ideal Republic; or may be applied to social revisionists such as George Orwell; and have implied use in military planning for millennia. It is in fact from military use that modern scenario techniques emerged, particularly in military strategy studies around the US "Manhattan Project" (1942), where the limits of probability distributions in assessing outcomes of atom-bomb explosions led analysts to develop computer simulations of the distribution of possible events (Schwartz, 1991).

#### **3.2.1 Influence of Herman Kahn and the Rand Corporation**

After World War II, the concept of scenarios was further developed for the nuclear strike early warning system "Air Defence System Missile Command" by Herman Kahn at the RAND Corporation, a US military think tank. Kahn's scenarios demonstrated numerous possible paths to, and outcomes from, nuclear war with Soviet Russia, and examined the possibilities of world order, potential power alignments and international challenges to American security, as documented in his book *On Thermonuclear War* (1960). Kahn's scenarios were innovative in being "non-predictive" hypothetical chains of plausible of events, much like a play or movie script, from where the scenario term was borrowed. Thinking about the

future in this way shows the influence of Kahn's location near the film lots in Los Angeles, and particularly his friendship with Stanley Kubrick.

In 1961, Kahn left RAND to set up the Hudson Institute, a private research firm devoted to issues of U.S. public policy, international relations, and defence, and continued to explore uncertainties surrounding nuclear strikes and alternative pathways to nuclear escalation via his "escalation ladder". Referring to Kahn's book *On Escalation: Metaphors and Scenarios* (1965), Joe Coates (2000, 115) writes: "Kahn's monumental contribution to military thinking was his escalation ladder. The world is not a world of nuclear war or no nuclear war. There are distinct variations or stages of what may occur between 'war' and 'no war' under different circumstances. His escalation ladder described a sample of those steps." (Kahn's scenarios-of-escalation work remains the spiritual antecedent of both professional-military war games planning and amateur war "gaming" to this day.)

Soon after Kahn founded the Hudson Institute, two other Rand "alumnae" Olaf Helmer and Theodore (Ted) Gordon founded the Institute For The Future which remains a pre-eminent think-tank in the foresight field to this day. At the time, Helmer, Gordon and Norman Dalkey developed their understanding of corporate scenarios in association with the Stanford Research Institute (SRI). Kahn's following book, *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years* (Kahn & Wiener, 1967), developed scenarios in currently recognised terms (Millet, 2008). One of the authors' scenario "worlds" depicts an arms control agreement between the United States and the Soviet Union; another assumes the Soviet Union would lose control of the Communist movement; a third projected construction of



new alliances among countries. In demonstrating the use of scenarios as a methodological tool for policy planning and decision-making in complex-uncertain situations beyond the military, the book is a landmark event in the field (Bradfield et al., 2005), and strongly influenced subsequent development and diffusion of scenario techniques, for example, the Club of Rome's "The Limits to Growth" Study (Meadows, D.H. et al., 1972) and "Mankind at the Turning Point" (Mesarovic & Pestel, 1974).

### **3.3 European Origins of Scenario Planning**

The scenario method had, simultaneously, independent European roots: in France, in the 1950s, French philosopher Gaston Berger created the Centre d'Etudes Prospectives, also formulating a scenario-based approach to planning which he called "la prospective". Bradfield et al (2005, 802) reflect that Berger was concerned with the long-term political and social future of France, and the underlying philosophical premise of his work was that the future is not part of a "predetermined temporal continuity", but something which is to be created and which can be "consciously modelled to be humanly beneficial". Accordingly, the objective of the Centre Prospectives was to formulate a scenario-based methodology for developing positive images of the future, and to lead these images into the political arena where they could serve as a guiding vision to policy makers and the nation, providing a basis for action. This is the earliest clear antecedent of what is referred to in this dissertation as "visionary-advocacy" scenarios.

Berger died in 1960, but the Centre Prospectives continued under economist Pierre

Masse who introduced the use of the prospective scenario approach in the development of the fourth French National Plan (1960–1965), and Bertrand de Jouvenel, who directly followed Berger, and coined the term “futuribles”, using scenarios to construct positive images of the future with the aim of finding ways to bring these into being. The Prospectives work has been continued and expanded by Michel Godet who was in charge of the Department of Futures Studies at the SEMA Metra Consulting Group, from 1974 to 1979. The method further evolved during 1980s when Godet was at the Conservatoire National des Arts et Metiers, during which time he developed scenarios for French national electricity company EDF, the oil company Elf Aquitaine SA and the French Ministry of Defence. (Godet, 1996). Bishop et al (2007) remark that Godet took scenario work in the direction of computer programs to analyse structural conditions and stakeholder positions, and also created two tools that generate scenarios—MORPHOL and SMIC PROB-EXPERT.

### **3.4 Early Experience of Royal Dutch Shell**

As Kahn’s work at the Hudson Institute grew in renown, he was approached by corporate planners, including Ian Wilson of the General Electric Corporation, and Pierre Wack and Ted Newland of Royal Dutch Shell, France, looking to apply Kahn’s methodology to their corporate planning situations. Wilson’s team at GE generated four alternative futures for the U.S. domestic consumer market (1980) as shaped by global and US economic and socio-political conditions over the decade. (The Wilson scenario report was published internally at GE as “Environmental Task Force of the

Corporate Executive Staff: Four Alternative World/U.S. Scenarios 1971-1980," General Electric, January 1971.)

It was Wack's work at Shell, however, that was truly formative for the entire field of scenario planning going forward. In 1965 Shell introduced a new planning system called "Unified Planning Machinery" (UPM). UPM was a worldwide system that looked ahead six years: the first year in detail, the next five in broader lines. (Wack, 1985a). UPM was characterised by statistical and financial modelling, and remained based on positivist assumptions (as defined in Chapter 1). However, planners found that, given the long lead times for new oil infrastructure investments, the six-year horizon was too constraining. Pierre Wack, a planner at Shell France, one of the participating companies in the corporate-level exercise, was familiar with the scenario approach developed by Kahn, and decided to experiment with the technique using France as the testing ground. In 1970 Wack led a 15-year (to 1985) look-forward exercise called 'Horizon Year Planning' for Shell Group Planning, which considered transformative change in the oil-producing regions—particularly change in the Arab world that would destroy the stability of the existing oil regime which Western oil companies had dominated and drawn a rich profit stream from for 25 years. Kleiner (2003) reflects that transforming organisational thinking to an approach that required study of a number of environments that were fundamentally different from the present, and different to each other, was a culture-shock for Shell planners. However, taking this "surprise scenario" seriously, Shell executives in 1971 decided to further develop scenario analysis for the decade ahead (the 1970s), particularly considering outcomes in a then newly-politically charged Middle East

environment in contrast to the default future (continuation of the post-war historical trajectory of year-on-year industry expansion and oil price stability). During 1972 and early 1973, the Shell Group Planners' message percolated through the global Shell organization: the oil price could soar from its then-current \$2 per barrel to an unimaginable price of \$10, a rise of 500% (In reality, by 1975, it would hit \$13.) Despite resistance from some Shell managers at the time, the organisation began to put in place hedges and options not considered valid strategy during the price-stable 1950s and 1960s (Wack, 1985a). This in turn put Shell in an enviable position when the 1973 oil crisis did occur, and an even more profitable position during the Iranian revolution of 1979, when the oil price soared to \$37 per barrel. The initial scenarios developed in 1971 on an experimental basis and presented to senior management in 1972, had proved extraordinarily successful in that they non-predictively fostered a view of the future of the industry by acknowledging important potential discontinuities. Shortly thereafter scenario planning was extended throughout the company (Kleiner, 2003). Millett (2008) comments that the work of Wilson and of Wack and Newland, changed the fundamental definition of a scenario from Kahn's "hypothetical sequence of events from the present to the future" to "alternative future states, regardless of the steps by which they were achieved."

Shell's early successes in application of scenario planning to the energy industry encouraged scenario development through the energy crisis of the mid-1970s. Two well-known energy futures scenario projects were Project Independence (Federal Agency Administration, 1974); and the Ford Foundation's Energy Policy Project

(Freeman, 1974). These scenario sets helped stimulate public awareness of the seriousness of the energy problem and alternative resolutions thereof (Gordon, 1974). Further to Shell's iconic experience, after the high-oil-price 1970s the oil industry as a whole entered a bubble phase and through the early 1980s executives assumed the price would keep rising. Under Wack however, Shell continued exploring counterintuitive outcomes and particularly a scenario where the oil price bubble would burst: the forces holding OPEC together would fragment (cartel supply caps would fail), while at the same time energy demand would slow due to global recession. As observed by Kleiner (2003) Mia de Kuijper, a Shell Group Planning executive shocked senior executives in proposing that oil was about to become "a commodity product," and Ted Newland dramatically recited to Shell managing directors in 1982 a nursery rhyme about the oil price: "Humpty Dumpty sat on a wall. Humpty Dumpty had a great fall." The price did in fact fall heavily over the next three years, setting in motion an industry consolidation that eventually swallowed three of oil's "Seven Sisters," to Shell's great advantage as described by Wack (1985b). Part of Shell's success in the 1980s also came out of scenarios which ahead-of-time considered implications of a breakup of the Soviet Union, which was not only a political unstable entity at that time, but also a major supplier in the European gas market.

#### **3.4.1 Purpose Implications of the Shell Method**

It was of critical importance to the Shell method that managers were not invited to choose any of the scenarios presented to them as "most valid" (Segel, 2007). This

follows the directive established by Kahn in 1967, as explained and cited above. In the same vein, probabilities were *not* to be attached to the scenarios, and planners were required to remain prima-facie neutral as to the different possible outcomes. Kahn and Wack (and SRI, GBN, and others that followed) eschewed probabilities which “look like numbers” and therefore assume too much precision and “imply predictive accuracy.” (Millett, 2008). The purpose of Shell scenarios of the time (and to this day) was therefore not to predict if or when a chain of events would come about, or what outcomes would arise; their purpose was raise alertness and understanding with regard to chains or clusters of events that could lead to important outcomes, with implied opportunities and threats for the organisation, therefore raising the credibility of these events and the merit of spending management time investigating and considering how to adapt the company or its offerings in the light of them. In other words, the purpose was to stimulate managers to mentally rehearse their options in alternative external environment conditions, and where necessary be ready to recast their strategy. Kleiner (2003, 4) comments that Wack’s underlying motivation was that “managers’ mindsets had continually to be ‘refreshed’ to take account of perpetually changing circumstances.” Wack’s own term for this process was “reperceiving” (1985b), showing clear orientation to enhancing managers’ quality of perception, particularly through challenging their assumptions and questioning mental models that may cause a manager to discount or be entirely blind to unexpected important outcomes. (See Chapter 2. Section 2.2.3).

At this early stage, Wack (1985a; 1985b) also sought to identify “predetermined

elements” in the future operating environment vs. “important uncertainties”, a move that remains foundational to scenario planning to this day, as the projects studied in the following chapters show. Predetermined elements are future certainties, which will arise in all plausible iterations of the future. Uncertainties on the other hand, which may resolve in two or more different ways (which way remains unknown and unknowable), form the basis of alternative plausible model worlds (scenarios), which become by virtue of their juxtaposition to the present, and to each other, a challenge to a manager’s assumptions and mental models.

### **3.5 Global Adoption and Proliferation**

Since these foundations in the 1970s and 1980s, the scenario planning method has been very widely embraced across private, public, and military spheres, and has become part of the standard offering of management consulting firms such as KPMG, Bain, & Co., and Accenture. Ringland (1998) notes the proliferation of scenarios in the public sector, in such organisations as; the UK National Health Service (NHS), Pacific Gas and Electric (PG&E), Consignia, Scottish Enterprise, US General Services Agency (GSA), World Business Council for Sustainable Development (WBCSD); and similar. The appeal of scenario planning increased further in the wake of the September 11<sup>th</sup>, 2001, strikes in the United States which heightened both popular and management acceptance of the notion of an unpredictable future. According to Bain & Company’s (Bain, 2007) annual survey of management tools, fewer than 40% of companies used scenario planning in 1999, but by 2006 its usage had risen to 70%. This rapid dissemination dovetailed closely with perceptions of rising

uncertainty in the business macro-environment and the inability of statistical forecasting or classic strategic planning to manage it, as discussed in the previous chapter (Section 2.2.1.1). In the private sector, organisations such as Texaco, Caledonian Paper and IPC Magazines, IDON Ltd, GlaxoSmithKline, Allied Irish Banks and Kinder-Care, British Airways, Cable & Wireless, Digital Equipment Corporation, Electrolux, ICL, Krone (UK) Technique, Statoil, and United Distillers are examples of companies that have endorsed and used scenario planning (Ringland 2002; Fahey & Randall, 1998).<sup>19</sup>

### **3.5.1 Enduring Influence of Royal Dutch Shell**

Postma & Liebl (2005) hold that the influence of Shell's experience on the development of scenario planning "cannot be over-stated". Bradfield et al (2005, 800) state that Shell's definition of scenarios and process methods "have become the de facto gold standard of corporate scenario generation". Further, Shell has had a foundational role in the global adoption and proliferation of scenario planning to this day. Shell Group Planning continues making scenarios and publishing some but not all of them. (As proposed further in this dissertation, what works are published vs. which remain confidential is a marker of alternative scenario purpose platforms. See Chapter 5. Section 5.4.2). Shell has also had a role in published scenario methods guidelines, distilling best practices from its own internal processes, for example

---

<sup>19</sup> The adoption and proliferation of the method, while substantial, has not been seamless, as referred to in Chapter 1 when describing the purpose of the research project: toward unravelling a set of problems that have mitigated against scenario planning adoption. It is also recognised that part of the foresight field itself has been critical of scenario planning both in general, and in its endorsement of the "American mainstream empirical tradition". These criticisms are reflected in Chapter 2 (Sections 2.3 and 2.2.5).



“Scenarios: An Explorer’s Guide” (Shell International, 2003), and other booklets as detailed in the bibliography, which has furthered the influence of the Shell approach as regards both the purpose and method of scenario planning.

Shell’s influence has spread in other ways: it had a close relationship with the Stanford Research Institute (SRI International) in the 1970s, formed in part around developing the SRI’s scenarios method into a business tool. Various analysts who had pioneered the scenario method at SRI International or at Shell Group Planning in London in the early 1980s, subsequently formed the pre-eminent scenario-based consulting firm, Global Business Network (GBN) in San Francisco in 1988. Among the principles of this firm were Shell and SRI “alumni” Peter Schwartz and Napier Collins. Schwartz’s book “The Art of the Long View” (1991) was the first popular book-length treatment of scenario purpose and methods. Other former senior executives in Shell’s Group Planning department, such as Arie de Geus, Joseph Jaworski, Charles Hampden-Turner, and Kees van der Heijden, all became corporate consultants and evangelists of the scenario method. Further, as described below, key Shell executives including Pierre Wack himself had foundational roles in the evolution of scenario planning in South Africa.

### **3.6 Scenario Planning in South Africa**

On retirement from Shell, Pierre Wack and Ted Newland became consultants to Anglo American’s London office, Charter Consolidated, which then invited Wack and Ted Newland to present their scenario work in Johannesburg in 1982 to Anglo American’s executive committee (Segel, 2007). Anglo American then pursued an

internal scenarios exercise involving Wack and Newland, plus individuals from the research and economics unit from Charter Consolidated and the corporate head office team in Johannesburg. The South African team at the time was headed by Clem Sunter, a figure who would subsequently become synonymous with scenario planning in South Africa over the next 25 years. The bulk of Anglo's Wack-and-Newland-led study focused on the formulation of global business-environment scenarios, but at the same time South African scenarios were developed which focused on an apparent choice facing the country at the time: whether it took the "High Road" of consultation and negotiation towards a non-racial democracy and rising prosperity, or the "Low Road" of continued repression, confrontation, global ostracisation and economic decline. Sunter presented these South African scenarios inside Anglo and its associated companies in 1986. After one of these sessions, the chief executive of Togaat Hulett, a sugar company, suggested Sunter make the presentation to the Natal-Kwazulu Indaba, which was at that time debating forming a joint legislature. Anglo's chairman Gavin Relly was initially reluctant because it had never been the intention to take the project into the public domain, but gave the go-ahead (Segel, 2007). Immediately after that presentation, five of the 29 delegates present asked that the talk be given to their constituencies. The company agreed, and further also decided he should make the presentation available to any group who requested it. In less than a year Sunter presented the "High Road vs. Low Road" scenarios 230 times across the country, to audiences from the National Party Cabinet to minor clubs and associations. (Jim Buys and Michael Spicer were added as separate presenters to enable Anglo to respond to the demand). Sunter published

the “High-Road vs. Low Road” scenarios under the title “The World and South Africa in the 1990s” (1987).

Since the High Road vs. Low Road scenarios, South Africa has used scenarios in national planning, in various projects some of which will be referred to later in this document, including: South Africa: Prospects for a Successful Transition (Nedcor/Old Mutual, 1992); The Mont Fleur Scenarios (1993); SA 2020 (African Leadership Institute, University of the Western Cape); SA 2020 (Dinokeng) and South Africa 2025. Scenario-based planning has also been used variously in the parastatal and corporate sectors in South Africa, most notably by Sasol, Eskom, and MTN.

### **3.7 Implications for the Research Project**

The rationale of widespread scenario dissemination of the type practiced by Anglo American is discussed further in Chapter 5 (Section 5.4.2). What is important to note here, at this stage preparatory to the research presentation in Chapter 4, is that in a very short space of time, scenarios in the hands of the same exponents (Pierre Wack and his immediate associates) are apparently used for distinctly different purposes. At Shell in the 1970s and early 1980s, and for Anglo American global operations in the 1980s, the method is used to assess and describe future outcomes to enable company executives to respond to changes in geo-political context surrounding the oil industry which they have little or no control over, but which could drastically change their operating environment and therefore the company’s returns. It is this purpose that is disseminated via the Shell communications, including Wack’s seminal Harvard Business Review pieces, company scenario practice reports and

method handbooks, as described above.

However, in South Africa in the mid-1980s, the High-Road vs. Low-Road scenarios, despite being created in association with Wack, appear to have been created and were certainly used for another kind of purpose: to illuminate and alert the white South African public and senior decision-makers to the choices they had (in areas they did collectively control), to persuade them to make one set of choices rather than another. It is apparent therein that a different purpose and view of constraint conditions underlies each. In the Shell scenarios of the 1970s, the purpose was to ready Shell to respond optimally to adapt to pending and-or unexpected changes in its external environment; in the Anglo American High Road vs. Low Road scenarios of the 1980s the purpose was to help push against and overcome constraints (in this case, white community intransigence) towards a better outcome for all; to influence the future towards away from one road and towards another.

The next chapter, Chapter 4A, presents and investigates the primary case studies towards investigating purpose-platform distinction in scenario planning. This is followed by Chapter 4B which presents the subsidiary cases (by semi-structured interview) that further investigate the existence and parameters of purpose-platform distinctions. This is followed by Chapter 5, which consolidates and analyses the findings of the research investigation, and Chapter 6 which presents the argument of the dissertation and proposed contribution to knowledge, in terms of the research question.

\*\*\*

## **Chapter 4**

### **Section A: Case Studies**

#### **4.1 Introduction**

Chapter 4 presents the research conducted for this dissertation. For clarity, this is divided in two parts, this section, Section A (Chapter 4A) which presents two in-depth case studies, and Section B (Chapter 4B) which presents 13 supplementary mini-cases, studied by project-based structured interview.

Chapter 1 delineated why research by case study would be appropriate and effective, in serving to investigate the research question in general, and with reference to scenario-method subject matter in particular. To this end, in-depth descriptive interviews with representative practitioners directly involved and responsible for each of the case studies have been done, and various pertinent graphic elements have been selected from the scenario preparation or write-up documents, in pursuit of a full and reliable case study, and are presented below. (It should be noted that, for the purposes of separation and independent triangulation of findings, the in-depth case studies investigated were *not* also subject to semi-structured qualitative case-study interviews as pertained to the method of investigation of the 13 supplementary cases, as presented in the next section, Chapter 4B.) The cases are presented here with allied clarification and

enrichment, but with minimal interpretation. The analysis of the work presented below and in Chapter 4B is collated and presented in Chapter 5.

## **4.2 Choosing the Case Studies**

With the benefits of case study research and its applicability to the current research needs established, as described in Chapter 1, the research direction of this project proceeded to find and choose case studies that would provide academic insight most beneficial and relevant to investigating the research question. To this effect, for obvious reasons, the case studies needed to be scenario projects. Further they needed to be scenario projects where enough was known, or could be reasonably researched, about the methods of construction of the scenarios, in order to be able to make the key judgements sought by the research in terms of purpose platforms and constraint conditions underpinning scenario work.

### **4.2.1 Success Orientation**

The point was made in Chapter 1 that while many scenario projects are highly successful, many others fail or return low utility, and that this is among the primary motivations of this Ph.D. project: to add to the theory on why this may be so; to investigate whether, and if so to what extent, project failure is caused by a maladaptation between scenario purpose mode and underlying project or organisational purpose, and-or maladaptation of purpose-based method to external constraint conditions. Choosing primary case studies therefore produced

the problem: would it be better to investigate case studies of projects that are considered a failure or case studies considered a success? Although it was anticipated that either route would bear fruit towards investigating the research question, it was decided to use case studies of success. This is because success inherently implies that the underlying choices made in case project construction were successful, and therefore any steps and methods extracted can be reliably associated with the success. On the other hand, when a project fails, the cause of failure is often not clear, and one or a number of factors, or even their associative interplay, may be at fault. Alternatively, the method may be not at fault, but its particular execution by an organisation or facilitator may have been poor. In sum, a reliable connection between a causal factor and failure would be academically less certain. Therefore successful projects were chosen. A mix of successful and unsuccessful projects was chosen for the 13 supplementary cases presented in Chapter 4B.

#### **4.2.2 Location**

Despite the researcher's academic and professional familiarity with scenario projects completed in the 1980-2010 time period the world over, a specific decision was made to find and investigate African case studies, which reflects primary location of the research at an African research institution, as well as the significant experience of the researcher in this location. Further, as discussed in the previous chapter (Chapter 3, Section 3.6) the African region, and particularly South Africa, has participated extensively to the evolution of the global scenario project base

which in itself suggests this region is a fertile terrain of study; in addition, as will become apparent below, and as further discussed in Chapter 6 (Section 6.7.2), African situations are more than averagely academically productive for investigating the research questions in that they provide clear constraint conditions, and therefore are instructive in revealing the implications of alternative scenario purposes in relation to constraint conditions. Therefore African studies were specifically chosen as the basis of primary case study analysis here.

#### **4.2.3 Number of Studies**

The researcher needed to make a decision as to how many cases to investigate. The obvious trade-off was between depth and breadth: more studies could be investigated at lesser depth. In the context of interviews to come (Chapter 4B), it was decided that the single greatest benefit of case studies to the research project would be the depth of analysis they offered, and so the number should be kept small. Given this, in many projects it would make sense to take one case only. However, in this project, which rests fundamentally on comparing and contrasting two methods of approach, it made more sense from an academic research point of view to investigate two cases that were apparently contrasting in method and purpose. This is therefore what was done.

#### **4.2.4 Limitations of the Case Method**

As outlined in Chapter 1, a case study implies a close study of a situation, event or process. It involves gathering detailed information to obtain in-depth knowledge of



target subjects in context. As this depth of description and analysis was required for describing scenario process, and therein drawing theoretical inferences with regards to the research question, the research situation clearly called for the case study method as applied above. However, as Easton (1992) and Hussey & Hussey (1997) describe, the case study is a detailed examination of a single instance of a phenomenon of interest: cases studies are an example of phenomenological methodology, which is characterised by illuminating the specific and the particular. They are deep in focus but narrow in scope. Basing an analysis on isolation of two scenario projects out of the hundreds known to have been completed in the last 30 years where scenarios have been in common practice would of course represent research that is too narrow in scope. It therefore remained to augment the cases above with qualitative interviews. The primary case studies investigate the research question in detailed, concrete terms: the semi-structured interviews that follow test its validity over a wide spectrum of projects.

#### **4.3 Scenario Case Study 1:**

***Eco-Resorts of the Future (Scenarios for 2028), Arup Foresight & Innovation, Ngurdoto Mountain Lodge, Tanzania, 2008.***

##### **4.3.1 Case Sources**

This case study was investigated via the documents of the project, kindly made available to the researcher by Arup Foresight, as detailed in the bibliography. Chief among these are the Scenario Report and the Delegate Pack. The textual records and materials were augmented with (a) the researcher's own notes of a

presentation of this scenario work at London Foresight Symposium, attended by the researcher in November 2008; and (b) by in-depth interviews conducted with the scenario project leader, Francesca Birks, of Arup Foresight, in April 2010 and over the following months.

#### **4.3.2 Case Overview**

In mid-2008, the consulting firm Arup Foresight (UK) hosted and conducted a scenario-building workshop for a client that operates in the international eco-tourist industry. Aside from pre- and post-production, the scenarios centred on a two-day workshop at the Ngurdoto Mountain Lodge, in Tanzania, in 2008. Subsidiary contributing organisations were *Arup Botswana, Arup NYC, Arup South Africa, BT, Central St. Martin, Dissing & Weitling, Eikosphere, Governess Films, Hines, Make, The Mountain Institute, Nature & Kind, NYU Film School, P2P Safaris, Planning Kenya*, and *Sleeper*. (Arup Foresight 2008a, 39).

##### **4.3.2.1 Situational Context**

Tourism plays a vital role in the Tanzanian economy. As in many places in Africa, it is a crucial foreign exchange earner, but beyond this, it has a key role in developing grassroots communities economically and socially. Tanzania has significant potential for the development of eco-tourism projects that can help to conserve vast lands belonging to rural municipalities. Investors can only acquire these lands through the Village Land Act, a progressive law that respects traditional rights of land tenure.

#### **4.3.2.2 The Client**

The scenarios were commissioned and paid for by the firm Habitaem, under the directorship of social entrepreneur Jose Ojeda, and its partner ISTCD (In Service Training on Cultural Diversity). Habitaem has eco-businesses in Tanzania and Nepal. On its web site, Habitaem defines itself as: “a socially committed business initiative. It is formed from an international group of professionals including architecture, medicine, and hospitality.... Our main aim is to generate eco-resorts which can contribute to conservation and sustainable development.”<sup>20</sup> Arup defines the client as a social and sustainable entrepreneur, interested in sustainable development, with the view that eco-tourism is a viable way to achieve social-sustainable goals, including social development and protecting habitat and wildlife.<sup>21</sup>

#### **4.3.3. Defined Purpose of the Scenario Project**

Habitaem had raised funds to develop a model of for-profit eco-resorts that were efficient tools for both conservation and rural development. It had chosen Tanzania and Nepal for the development of pilot projects, to test models that would bring about a symbiosis between eco-tourism, conservation and rural development, and to anticipate formats for partnerships between local communities and outside investors in developing sustainable African resorts.

---

<sup>20</sup> <http://www.habitaem.com>. Viewed April 17, 2012

<sup>21</sup> Arup’s point of view in this case study has been determined via documents as listed in the bibliography as well as interviews with Francesca Birks, Arup’s facilitator and manager of the project; and via emails and document exchange with Birks and with Arup Director of Foresight, Dr. Chris Leubkeman.

“Within this context, the goal of the scenarios was to explore how sustainable resorts (eco-resorts) could emerge into the Tanzanian tourist industry, what these might look like, what types would be successful, and why, and to build towards new and improved concepts of sustainable resorts.”<sup>22</sup>

#### **4.3.4 Pre-Work and Event Setup**

Arup invited participants from its various global offices, and also looked at its network from previous events, seeking to invite participants based on interest in sustainable business in general, or eco-tourism in particular, or those who could make other specific contributions on themes relating to business in Africa, technology, development, tourism, and allied interest.<sup>23</sup> Arup assigned one piece of preparation “homework” before the event, asking people for their associations, particularly: “What have you loved or hated about an eco-resort?” (Arup Foresight 2008a, 6)

##### **4.3.4.1 Local Experience: Learning Journeys**

The facilitator also provided an “experience day” on June 9, 2008, the day before the plenary workshop. In what was described as a “learning journey” Arup sent four groups to experience the range of service and client issues at various different resorts (the Dik Dik, Arusha Coffee Lodge; Mount Meru Game Lodge; Mountain Village) near the city of Arusha, Tanzania. The specific questions the delegates were tasked with answering were as follows:

---

<sup>22</sup> Birks Interview, April 2010. See Appendix 1.

<sup>23</sup> The full delegate list of 32 is recorded in the delegate pack: (Arup Foresight, 2008b, 5)

**FOOD:**

Where does the food served at the resort come from? Please describe any onsite food production or purchasing practices ie. buying only goods that are local, organic, fair-trade and/or good practice? \_\_\_\_\_

Does the food served at the resort represent local culinary culture? Are options offered to accommodate preferences such as vegetarian, halaal, kosher, etc.? \_\_\_\_\_

**SOCIAL:**

How does the local community benefit from the existence and activity of the resort? Examples are an increased number of jobs, skills training in the local community or results of projects such as resort funded construction of a needed schoolroom. (raises cultural awareness, encourages participation in community activities, facilitates local sponsorship programmes, etc. \_\_\_\_\_

Please list any past, present or planned community projects and their impact on the community. \_\_\_\_\_

Please state any staff, guest or community eco-training or education programmes, materials and resources. \_\_\_\_\_

**INTERPRETATION QUESTIONS:**

Is information regarding the operations and practices of the resort easily accessible? Please describe whether staff members are knowledgeable and enthusiastic about ecological and cultural issues. \_\_\_\_\_

Please describe what aspects make you want to stay at this accommodation, and what changes would make you want to stay here more. \_\_\_\_\_



<p><b>PROPERTY:</b></p> <p>Property location: _____</p> <p>Property size (approximate): _____</p> <p>Land ownership ie. private, owned by resort, government owned: _____</p> <p>Resort ownership ie. locally owned, family, partnership, franchise: _____</p> <p> Brief description of property ie. campsite, luxury hotel: _____</p> <p>_____</p> <p>Number of staff: _____</p> <p>Number of staff who are local nationals: _____</p> <p>Number of rooms: _____</p> <p>Maximum number of guests: _____</p> <p>Guest resident countries: _____</p> <p><b>VISITOR EXPERIENCE:</b></p> <p> Briefly describe your overall impression of the resort. Consider interactions with staff, the physical resort buildings and general resort atmosphere ie. how inviting the resort feels and comfortable you are there.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
--

Figure 4.1. Source: Arup Foresight. From supplementary documents provided to the researcher by Arup Foresight.

The spirit of localisation that the learning journey embodies ties in with the client Habitaem’s general contention that visiting participants needed a close understanding of not just the industry but also African situational conditions and constraints, in order to more accurately think about future scenarios and solutions.

#### 4.3.5 The Scenario Building Workshop

The plenary workshop session was held over 2 days, on June 10-11, 2008. As reflected in the main report (Arup Foresight, 2008a) and confirmed by Birks, participants went through trend identification exercises common as a first phase of scenario building. These took the form of STEEP scanning, particularly looking

at drivers and constraints, and a “global force” session. In Arup’s terms this is a group stimulation of “where we are today vs. where the group thinks we are heading”, to challenge current perceptions of reality and get participants thinking long-term: the time-horizon of the project was 2028. Among the pertinent results were (Arup Foresight 2008a, 10):

Individuals were asked to spend time in one of the five categories in order to consider the top five issues challenging or driving change for the development of ECO-RESORTS.

Social	Technological	Economic	Environmental	Political
1. Authenticity	1. Energy infrastructure	1. China trade	1. Endangered species and habitat	1. Asianization
2. Aviation	2. RFID-Pie	2. Carbon finance	2. Climate change	2. Ethical investment
3. Affluence	3. Virtual eco-tourism	3. Democratization of luxury	3. Eco-tourism as a catalyst for wider development	3. HIV/AIDS
4. Local wealth creation	4. Water harvesting	4. Global economy/ trade	4. Eco-tourism as a substitute for resource extraction	4. Planning policies
5. Communication	5. Bio-treatment of waste	5. Inflation	5. Preservation of cultural and natural heritage	5. Resource conflicts

Figure 4.2

#### 4.3.5.1. Scenario Matrix

The scenario report reflects the following 2x2 scenario matrix (Arup Foresight 2008a, 23):

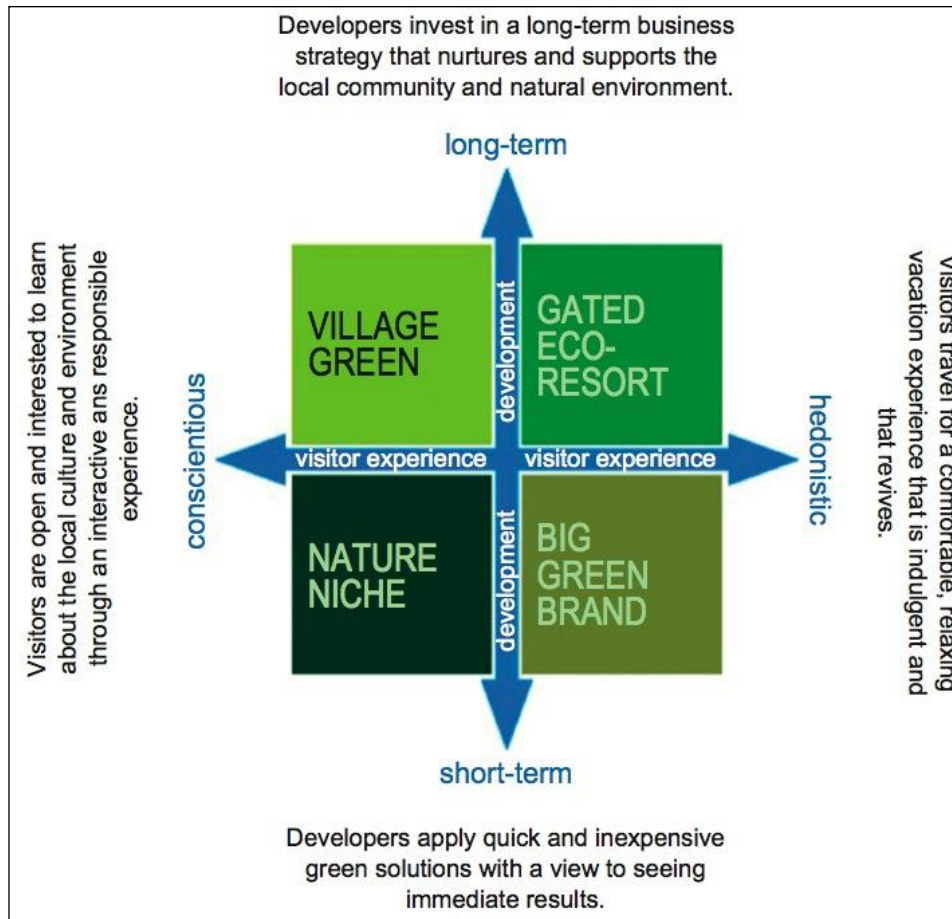


Figure 4.3

The vertical axis of uncertainty plots resort developers' attitudes towards projects: whether they would take a long-term or short-term approach; the horizontal axis plots consumer (resort guest) attitudes to their African lodge experience: whether people would mostly indulge in a more superficial "hedonistic" and ecologically superficial experience, or whether they would be more environmentally and socially conscientious in their choices, and have a deeper relationship with the locality and local inhabitants. The polarities of the axes are described as follows:



**“Long term:** Developers invest in a long-term business strategy that nurtures and supports the local community and natural environment, vs.

**Short term:** Developers apply quick and inexpensive green solutions with a view to seeing immediate results.

**Hedonistic:** Visitors travel for a comfortable, relaxing vacation experience that is indulgent and that revives, vs.

**Conscientious:** Visitors are open and interested to learn about the local culture and environment through an interactive and responsible experience.” (Arup Foresight 2008a, 23)

In this project, as sometimes happens in scenario facilitation where time is precious, the facilitators had in fact derived the idea for scenarios based on these uncertainties and therefore this particular matrix structure before the workshop; they were thus able to use workshop time to develop stories and implications around it. According to the Arup style of facilitation, as reported by Birks, the facilitators had determined these were the key drivers of uncertainty that would shape the future sector operating environment, and which therefore would provoke the most fertile workshop discussions and scenarios outcomes.

#### 4.3.6. The Scenarios

For each of these alternative worlds a specific eco-resort solution was envisaged, as follows (Arup Foresight 2008a, 28):

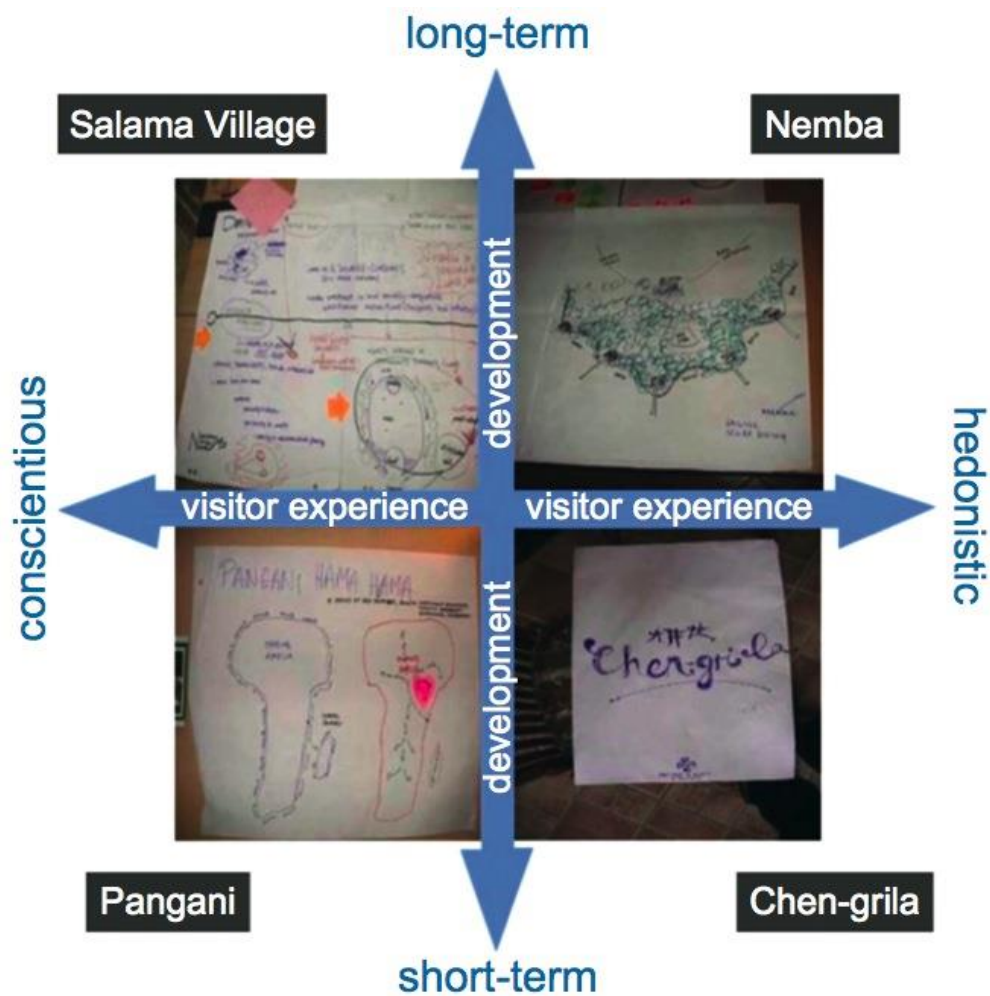


Figure 4.4

##### 4.3.6.1 Salama Village (conscientious visitors and long-term investors)

Key terms: niche market, cultural exchange, eco-village community

**Visitor Experience:** The 5,000 hectare resort has been transformed into an eco-village of bungalows. On average the length of stay is anywhere between 1 week to 6 months. The resort will be developed and designed to cater to tourists' needs and will be flexible enough to meet the desires of the market sector.

**Economics:** The project will involve the community as an integral part of the financial model for the resort. Dynamic pricing will be set to discourage short and passive stays and to encourage repeat business. Guests, as primary shareholders, can put their property back into the rental pool when not in use. CSR operating partnerships have also been identified.

**Eco-Concept:** The resort will incorporate the natural landscape into its design. There will be the use of natural resources for passive ventilation and the use of local geothermal ground conditions for producing electricity and hot water for the resort. The resort will be entirely self-sustaining in terms of food, energy and water. Animal conservation will also be an element.

**Prototype client: Pratima.** (Each of the four groups was assigned a character. The characters were carefully developed taking into account global demographic and lifestyle trends in the next twenty years such as the growth of the Chinese and Indian middle class, ageing populations, and the increased buying power of female professionals.)

Pratima is beginning the fourth chapter of her life. Indian, recently widowed and an “empty-nester”, she is looking for a new place to call home. Community and the ability to be part of one are extremely important to her. Her immediate surroundings are also critical to her spiritual world.

#### **4.3.6.2. Nemba, a private island (hedonistic visitors and long-term investors)**

Key terms: high-end, luxurious, exclusive, branded philanthropy, customised

**Visitor Experience:** The property offers a maximum of six units. All units are 100% private and provide shared central services to the occupants. The central core has private spa and service facilities. A personalized host serves each guest and is able to provide the guest with the kind of service they are accustomed to receiving in their primary home.

**Economics:** There is a total of six investors on the property, which include Taylor and five other suitable occupants. The members pay an annual fee for exclusive and unrestricted use of the facilities.

**Eco-Concept:** The immediate community benefits from jobs and dividend flows. The property maps the fishing populations to assist the fishing community, which is dependent on this trade for their subsistence. The theme for the buildings is low rise and low impact.

**Prototype client: Taylor.** Taylor is a successful partner at a New York law firm, Taylor is extremely ambitious and used to getting what she wants. She is selective about her brands and is equally discerning about her leisure time. She is willing to pay a premium for quality.

#### **4.3.6.3. Pangani: (conscientious visitors and short-term investors)**

Key terms: mobile eco-resort, layers of private space, local community interaction

**Visitor Experience:** The self-contained mobile pods can be assembled and disassembled to move to new locations and to incorporate other social pods. The design of each pod balances the guest's need to be connected with a desire for privacy. The pods can travel on land and water so that guests can follow migratory patterns in Africa.

**Economics:** A large part of the economics of this project are that a percentage of the revenue will be re-invested into the local communities via partnership agreements and shareholding in order to invest and develop human capital.

**Eco-Concept:** The pods aspire towards carbon neutrality. They are built from renewable materials and are sustainable in their operations. A roof clad of PV panels, internal composting toilets and grey water treatment are part of the design. Guests also contribute to the local education system by fostering a child from the community.

**Prototype client: Lars & Stephan.** Lars and Stefan are a young gay couple still excited to discover new places and experiences. However, they are also quite conscious of their impact on the natural world. They are open to new ideas, but any holiday they take will need to be low-impact.

#### **4.3.6.4. Chen-grila: (hedonistic visitors and short-term investors)**

Key terms: big brand get away for families, Chinese-centric, feng shui design, invisible green eco-resort

**Visitor Experience:** The minimum stay at the hotel is seven nights. The resort has been carefully designed to take into account feng shui principles. The Chen-grila

offers adventures within guidelines to cater to its Chinese clientele. The resort is safe, offers child care, and holds no surprises for the visitor.

**Economics:** The anticipated cost of construction for the resort is high, requiring considerable investment in hidden or invisible green technology. The economics of this concept highlights the extreme hidden efficiency of the operational side.

**Eco-Concept:** The resort will operate as a closed self-sustaining loop and respect cradle-to-cradle principles (i.e. grey water from showers will be used for laundry; photo-voltaic power generation from the man-made volcano lake). A close connection to the community will be developed with an understanding that many of the resort employees will be locally employed.

**Prototype client: The Chens.** The Chens are part of the recently emerged Chinese middle class. They are hard workers and operate their own franchise. They value their traditions and the time they spend with their immediate and extended family network. Ideally they look for holidays where they can reconnect and play with family.

#### **4.4. Scenario Case Study 2: *Live the Future* (Scenarios for 2025), Metropolitan Life Foundation, Cape Town, 2005.**

##### **4.4.1 Case Sources**

This case was investigated via the extensive documents of the project, kindly made available to the researcher by the Metropolitan Life Foundation, many of which are also available at the website <http://www.livethefuture.co.za>. The documents are detailed in the bibliography. The textual materials were augmented with phone calls with various Metropolitan Life employees, and an in-depth interviews with Desiree Daniels, past-Metropolitan Life employee and Chief Co-ordinator of the scenario project, and with Dr Barbara Heinzen, Lead Facilitator of the project.

##### **4.4.2 Case Overview: Situational Context**

In 2004-2005 Metropolitan Life and the Metropolitan Life Foundation created a set of scenarios for HIV-AIDS in South Africa to 2025. At the time HIV-AIDS was very much top of the national agenda, particularly in terms of governmental non-acknowledgment of the problem and lack of apparent policy responses; worries surrounding health care provision and cost; lack of clarity on roles and obligations of pharmaceutical companies; and individual and group fears. As the data in the charts below shows, South Africa was facing a very severe medical catastrophe, the outcomes of which certainly could not be predicted. However, it is apparent that the scenario creators did perceive that HIV-AIDS outcomes for 2025 could be influenced and beneficially shaped by the various agents involved during the 20

year time period (2005-2025), and created scenarios based on that assumptions, as described in the next section.

#### **4.4.3 Defined Purpose of Scenario Project**

In the Forward to the Project Overview (Metropolitan Life Foundation 2009a, 3) Program Director Nathea Nicolay addresses the purpose of the scenarios as follows: “The Live the Future scenario model is a powerful tool to inspire all South Africans to take action against HIV and AIDS.” The goals of the Live the Future scenario project are further defined on the [livethefuture.co.za](http://livethefuture.co.za) web site as follows:

“The *Live the Future* project aims to mobilise leadership from all sectors, and anyone else who can make a difference, with a view to drawing together and intensifying efforts to mitigate the effects of HIV and AIDS in South Africa. Our donor, Metropolitan Group, has for a long time played an active role in the HIV and AIDS arena, having developed the Doyle model—the first actuarial tool to project the demographic effect of HIV and AIDS in southern Africa. We view the *Live the Future* scenarios as an equally pivotal tool to:

- Create a shared understanding of the key factors driving the HIV and AIDS epidemic so as to minimise the spread and the effect of the epidemic;
- Create a vision of a successful future that will inspire people from different sectors to commit to specific actions at an individual, organisational, community as well as at a national level;
- Identify key actions required to align, intensify and broaden efforts countrywide so as to maximise synergies and more effectively use limited resources;
- Influence policies and agendas at different levels.”



Purpose is further elaborated as follows:

“The key question we asked when developing the scenarios was: 'How will HIV and AIDS *and our responses* (new italics) shape the future of South Africa by 2025?' ... The Live the Future scenarios suggest that unless we aim to prevent new infections, collaborate and adopt a holistic and integrated approach, we will make little progress in stemming the tide... Join us in 'living this dream' by taking the necessary steps to shape South Africa's future in areas where you have influence, i.e. in your personal life, in your community and in your work or professional capacity. Together we can create a South Africa beyond expectation.”<sup>24</sup>

#### **4.4.5. Pre-work and Event Setup**

Peter Doyle, CEO of Metropolitan Life at the time, had done actuarial HIV-Aids “projection scenarios” 20 years before (in the mid-1980s), the more gloomy of which had in fact turned out to be accurate. Twenty years later, his idea was to redo scenarios, but less to do with projections and more to do with the idea of “collaborating, getting stakeholders on the same page, sharing a vision, so they could collaborate. There was a lot happening around HIV; responses were not necessarily attuned, we felt if we could create a shared understanding of where things are at, and if we could create a shared vision, we could work towards that and make a difference to HIV-AIDS in South Africa.”<sup>25</sup> Desiree Daniels was heading an HIV-Aids Unit at Metropolitan Life (a business advisory-advocacy unit) and became de-facto internal head of the project. Pieter Fourie was a close advisor,

---

<sup>24</sup> [www.livethefuture.co.za](http://www.livethefuture.co.za), viewed April 2012.

<sup>25</sup> Daniels Interview, March 2011. See Appendix 1.

and then-UK-based American facilitator Barbara Heinzen was appointed chief consultant and facilitator of the project. Storyteller Philipa Kabali-Kagwa and health economists Veni Naidoo and Marisa Casale were added, to form the core project team. Among the well-known advisors to the project were Pieter Le Roux and Adam Kahane, who were both instrumental in the Mont Fleur Scenario Project (Kahane, 1997) and whose contributions to scenario planning theory, particularly interpretation of its purpose and benefits, is recorded in Chapter 2 (Section 2.2.5).

#### **4.4.5.1 Meeting 1: Pre-session**

In this first meeting, known within the project as the “Pre-session”, the core team investigated various existing studies of the future and scenario sets that were primarily either (1) African in subject matter, or (2) HIV-AIDS scenario studies (global). They invited the authors of these projects to a workshop in Cape Town to share the highlights and discuss learnings and implications. According to Barbara Heinzen, the key questions asked at this stage were “who has the power, and what are their values and goals?”<sup>26</sup> Then the group asked themselves: “Are these the key things? And took the results forward to verify them in the open sessions” (that is at the stakeholder meeting, below).<sup>27</sup> At this early stage the following fork-in-the-road visualisation of alternative future paths was drawn (Metropolitan Life Foundation 2009a, 5):

---

<sup>26</sup> Heinzen Interview, April 2012. See Appendix 1.

<sup>27</sup> Daniels Interview, March 2011. See Appendix 1.

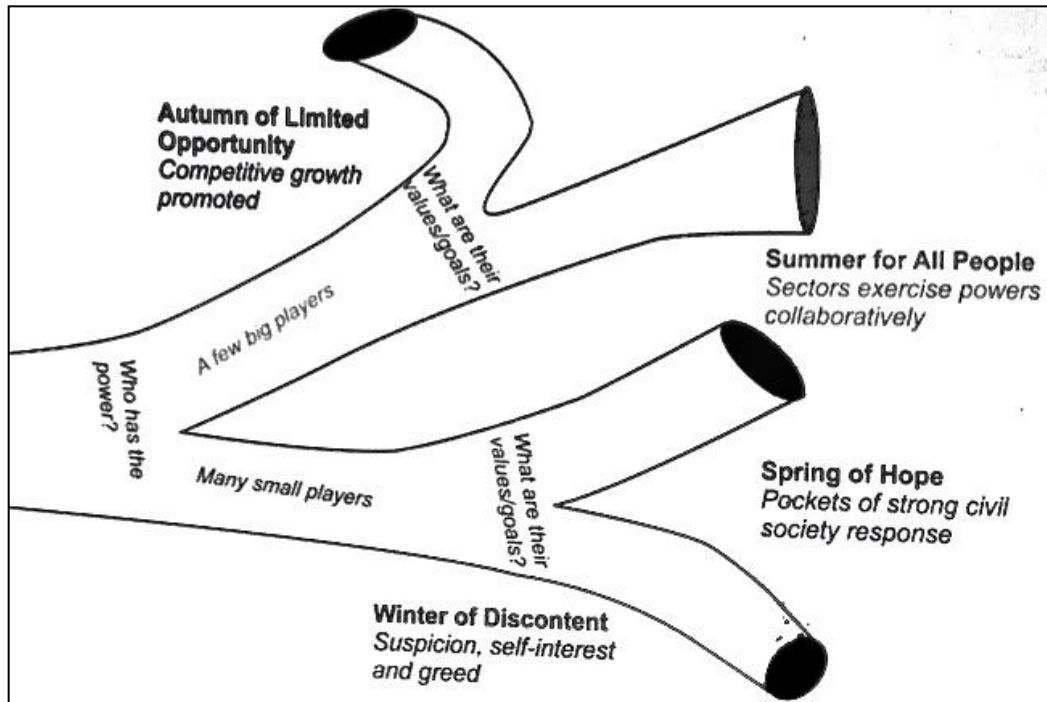


Figure 4.5

#### 4.4.5.2. Meeting 2: Stakeholder Meeting

At the next open meeting, known to the core team as the "Stakeholder Meeting", the core team invited a spectrum of business, government and community representatives to comment on their work thus far, to confirm or critique, or to further develop the themes that came out of the Pre-session. This was the meeting where much of the content was developed and the scenarios (presented below) were first fleshed out. It should be noted that, similarly to the Eco-Resorts of the Future study above, the core facilitation team developed the fundamental elements of the *Live the Future* scenario matrix prior to open plenary facilitated workshops.

#### **4.4.5.3. Meeting 3: General Meeting**

This was a plenary meeting of about 120 people from across South Africa, representing a wide spectrum of organisations and viewpoints: labour unions, community representatives, the business sector, central government and government departments such as Health and Education, specialist doctors, and professional directly involved in the HIV-AIDS care. They were invited “because they were stakeholders, not experts. They had an interest in the outcome of the issue. At this meeting the pre-scenarios were shared with the broad spectrum of stakeholders: the idea was to check and develop our thinking, and ask ‘are we on the right track?’ and get buy-in and so take the scenarios forward.”<sup>28</sup>

#### **4.4.6. Scenario Matrix**

The scenarios in final form were built around the uncertainties: “Economic Growth” (High vs. Low) and Social Collaboration (High vs. Low), as follows (Metropolitan Life Foundation 2009a, 6):

---

<sup>28</sup> Daniels Interview, March 2011. See Appendix 1.

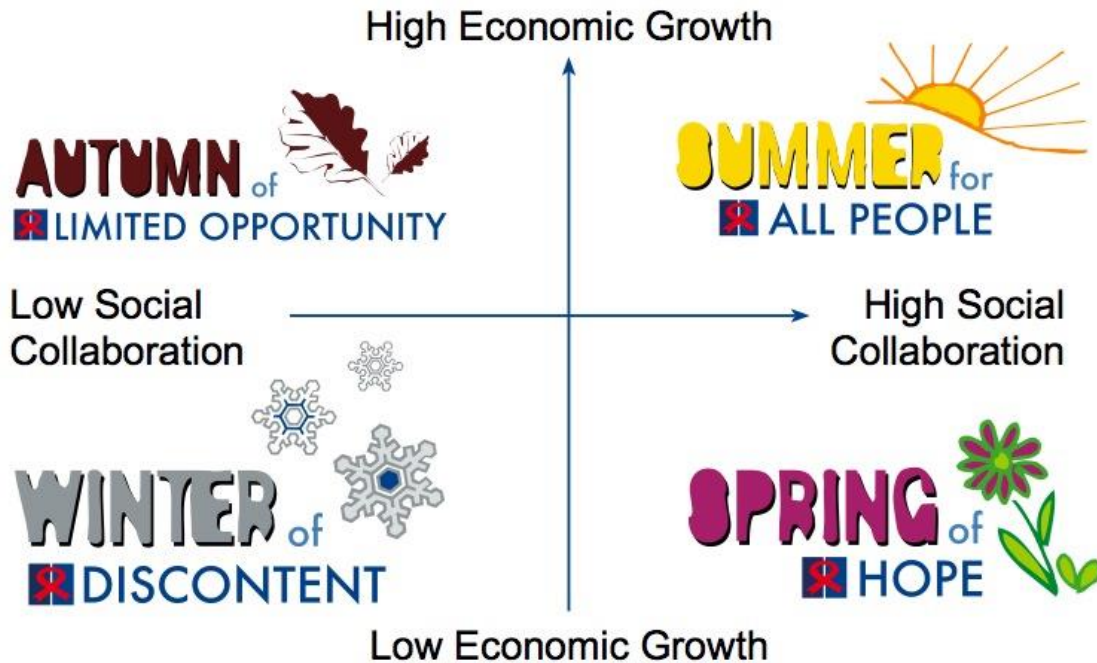


Figure 4.6

From this point in the proceedings facilitator Barbara Heinzen was no longer directly involved, and writing of the scenarios was handed over to a communications team at the Metropolitan Life Foundation. Desiree Daniels remained in oversight at the team came up with final names for the scenarios, created scenario write-ups, and made a video. The scenario summaries are as follows (Metropolitan Life Foundation 2009a, 8ff.):

#### 4.4.7.1 Scenario 1: Autumn of Limited Opportunity (high economic growth and low social collaboration)

**Key characteristics:** • Leadership driven by growth • Exclusive partnerships • Significant income differentials • Treatment and care is available, prevention is

lacking • Little behaviour change • Gender inequality and sexual violence • AIDS response intellectualised • Limited acceptance of HIV positive people

**The focus:** In the Autumn of Limited Opportunity the focus is on treatment and support to those who can afford it. The response to HIV is very much intellectualised and little benefit trickles down to those in need. Leadership is often self-serving and corrupt with the wealth and resultant power concentrated in a relatively small pocket of society. Exclusive partnerships are formed with strong individual agendas to address HIV and AIDS. Society is profit-driven with little focus on the spread of wealth. Business response to the epidemic is mostly profit-driven due to the reduction in HIV-related costs that come with an HIV workplace programme. Initiatives in the community are limited to urban areas and corporate social investment funding cycles are short. Civil society response under this Autumn scenario where there is high GDP growth and low social collaboration is limited. Donor programmes are short-sighted and work in isolation.

**Individual behaviour:** Awareness of HIV is quite high in the relatively wealthy first economy leading to a third of South Africans knowing their HIV status. Sexual violence is prevalent, and gender inequalities remain. There is limited acceptance of people with HIV and AIDS. Around 40% of adults use condoms consistently. Those not in a long-term relationship change partners very frequently and risky sexual behaviour still remains a huge obstacle in the response to the epidemic.

**The new society:** This is a society with high economic growth that is very unevenly spread leading to a high increase in income inequality. Some provinces show a high GDP per capita and others remain at very low levels. The Human Development

Index (HDI) differs widely between the first and the second economy. The HDI remains high in the first economy with good quality education and high life expectancy for those who can afford a good standard of living. Rural households and households in the second economy are severely affected by HIV and AIDS. Income reduction, increased borrowing, the sale of productive assets, illiteracy and malnutrition result in low GDP per capita, poor education and low life expectancy. The average person in the *Autumn* scenario is expected to live to age 55 by 2025. Business concentrates on capital-intensive industries and contract work becomes popular. The skills shortage worsens with the strong economic growth and skills are imported due to the lack of adequate skills development by the local education system. There is a booming market in the first economy with insurance remaining expensive but innovative.

**What does the HIV epidemic look like by 2025?** The total number of people infected with HIV in 2025 will have reduced to 4.2 million from the current estimates of 5 million. The estimated HIV prevalence rate for those between 20 and 64 will reduce to 13% from the current estimated 1%. A total of 530 000 South Africans will be in the final stages of the disease and in need of antiretroviral treatment. AIDS deaths per annum would have reduced to around 303,000.

#### **4.4.6.2 Scenario 2: Winter of Discontent (low economic growth and low social collaboration)**

**Key characteristics** • Weak self-serving leadership • Few partnerships • Focus on blame, stigma and conspiracy • No behaviour change: drugs, sexual violence, gender

inequality • Contradictory beliefs about HIV and AIDS • High crime • AIDS response: fake cures, corrupt systems.

**The focus:** Under a *Winter of Discontent* South Africans are focusing on apportioning blame for the unabated effects of the HIV and AIDS epidemic on South Africa. Stigma, denialism and conspiracy theories are the order of the day in the absence of a strong integrated response to HIV and AIDS. The response to AIDS has become desperate under a weak and self-serving leadership. Few partnerships are formed and the National AIDS Plan becomes ineffective. Business response is limited under this low growth scenario and labour is regarded as dispensable. There is a weak civil society, which is disappointed by the State Welfare system, and criminal and violent behaviour fuel the epidemic. Donor programmes are implemented on hidden agendas and with a short-term focus. Donor funding is significantly reduced over time.

**Individual behaviour:** Awareness of HIV is low with only one in five of South Africans knowing their HIV status by 2010. A high level of gender inequality and sexual violence still exist and criminal activity exploits these weaknesses in society. Condoms are only used consistently by about 40% of youths and 24% of adults. Those not in a long-term relationship change partners more frequently and South Africans are not taking individual responsibility for their health.

**The new society:** The *Winter* scenario society experiences negative economic growth and low social collaboration. There is an increase in income inequality and unemployment, which exacerbates criminal and corrupt behaviour. This results in the flight of the wealthy and the exploitation of the poor. The Human Development



Index (HDI) continues to drop after 2005 and AIDS reverses years of developmental gains made by some communities. Life expectancy drops to 50 years by 2025. Households are severely affected by AIDS with income reduction, increased borrowing, the sale of productive assets, and illiteracy and malnutrition being the order of the day. The State welfare system is strained and unable to cope. The large proportion of unskilled labour increases unemployment and skilled labour remains in short supply. Reduced foreign investment coupled with continuous deaths in the workplace leads to some companies closing down. The market shrinks with most expenditure focused on basic goods and security. Insurance remains expensive and unavailable to most HIV-positive individuals, as are most financial services.

**What does the HIV epidemic look like by 2025?** The total number of people infected with HIV in 2025 will have increased to 5.4 million from current estimates of 5 million. The estimated HIV prevalence rate amongst the ages 20 to 64 will remain high at 18%. A total of 786 000 South Africans will be in the final stages of the disease and in need of antiretroviral treatment. AIDS deaths per annum will be a high 445,000.

#### **4.4.6.3. Scenario 3. Spring of Hope (low economic growth and high social collaboration)**

**Key Characteristics** • Idealistic broad-based but uncoordinated leadership led by communities • Small duplicating partnerships • Powerful pockets in civil society responding well • Focus on acceptance and care • Moderate behaviour change • Better gender equality • AIDS response: chronic, manageable disease.

**The focus:** The *Spring of Hope* focuses on acceptance, care and cooperation. AIDS is seen as a chronic disease and society learns to live with the epidemic despite its devastating effect. Leadership is idealistic in certain pockets of communities, but efforts are uncoordinated and not powerful on a national level. Civil society becomes very strong in its response to AIDS and occasional partnerships are formed with the public and private sector as well as international donors to address the effect of HIV and AIDS. Churches play a key role around care. These efforts largely remain fragmented and uncoordinated leading to duplication and resulting in the unsustainable use of time and resources. Business response to the epidemic is strong in the workplace and community, however, due to a low GDP-growth environment, business input is mostly limited to those few who are employed.

**Individual behaviour:** Within this self-reliant society, certain pockets of the community become quite powerful and encourage people to get tested. Just more than one third of South Africans know their HIV status by 2010. More than 70% of the youth and around 40% of adults use condoms consistently. Those not in a long-term relationship change partners less frequently, due to pressure from society. Many communities empathise and care for AIDS affected households, and encourage higher gender equality and less sexual violence.

**The new society:** Low economic growth and an inadequate response to the HIV and AIDS epidemic result in a South Africa with low GDP per capita. Education remains poor, but life expectancy increases slightly to 56 years by 2025. Not much improvement has been made in the Human Development Index (HDI) since 2005. Skilled resources emigrate due to lack of employment opportunities and poor

service delivery. Most households are affected by AIDS but communities form cooperatives and assist with healthcare provision. The State welfare system becomes overburdened and government resources are limited. Shortage of skilled labour worsens with emigration and poor education, leading to the struggle of business to remain competitive globally. Foreign direct investment reduces in this low growth environment. Funeral insurance remains highly popular and the market for basic goods and services is strong.

**What does the HIV epidemic look like by 2025?** The total number of people infected with HIV in 2025 will have reduced to 3.4 million from the current estimates of 5 million. The estimated HIV prevalence rate amongst the ages 20 to 64 will have reduced to 11% from the current estimated 19%. A total of half a million South Africans will be in the final stages of the disease and in need of antiretroviral treatment. AIDS deaths per annum will be reduced to around 292,000.

#### **4.4.6.4 Scenario 4: Summer for All People (high economic growth and high social collaboration)**

**Key characteristics** • Strong collaborative leadership committed to a developmental society and led by government • Effective large-scale public-private partnerships • Focus on prevention, also provision of treatment and care • Personal responsibility for health • Wide-spread behaviour change • Strong social net • Integrated AIDS response

**The focus:** The *Summer for All People* focuses on prevention in order to reduce new HIV infections in an already advanced mature HIV epidemic. Care and treatment are

also important but the AIDS response is integrated to ensure that every level of society focuses on prevention, care and treatment. In order to achieve this, a strong collaborative leadership has emerged by 2010 with effective public-private partnerships to support the National AIDS Plan resulting in successful implementation. In the *Summer* scenario business becomes sustainable as a result of the new environment that has led to a smaller HIV epidemic but also as a result of its own initiatives around socially responsible investment and HIV and AIDS workplace and community initiatives. A strong civil society is consulted and integrated in the National AIDS response. Donor programmes become sustainable and are well coordinated.

**Individual behaviour:** The above positive environment results in widespread behaviour change. Around 40% of all South Africans are aware of their HIV status. Most South Africans test themselves regularly for HIV infection. Individuals take personal responsibility for their sexual health and behaviour. More than 90% of the youth and around 60% of adults use condoms consistently. Those not in a long-term relationship change partners less often. A strong social net breaks the downward spiral of poverty and the increased risk of HIV infection. Effective law enforcement has a dramatic effect on averting sexual violence and drug abuse.

**The new society:** South Africa emerges as a society where people are living longer and becoming more educated and skilled. The Human Development Index (HDI) increases slowly after 2005 as a result of higher life expectancy (59 years instead of 51 years), education and GDP per capita. Few households are affected by AIDS and those that are affected receive support via state and private sector initiatives.

Private and public healthcare initiatives reach most people. The stronger, more skilled labour force drives South Africa into a new era of economic growth. Business is utilising labour effectively and the cost of labour is competitive. More people enter the first economy, thereby spreading wealth. Skills are developed and retained. Foreign direct investment improves and South Africa becomes more competitive globally.

**What does the HIV epidemic look like by 2025?** The total number of people infected with HIV in 2025 will have reduced to 2.4 million from the current estimates of 5 million. The estimated HIV prevalence rate amongst the ages 20 to 64 will reduce to 7% from the current estimated 19%. A total of 340,000 South Africans will be in the final stages of the disease and in need of antiretroviral treatment. AIDS deaths per annum will be reduced by 50% to about 200,000.

#### **4.4.7. Scenario-Based Data Projections**

The scenarios were further elaborated in the form of actuarial research, calculation and extrapolation. The following charts summarise the actuarial projections for each of the scenarios, for the key variables:

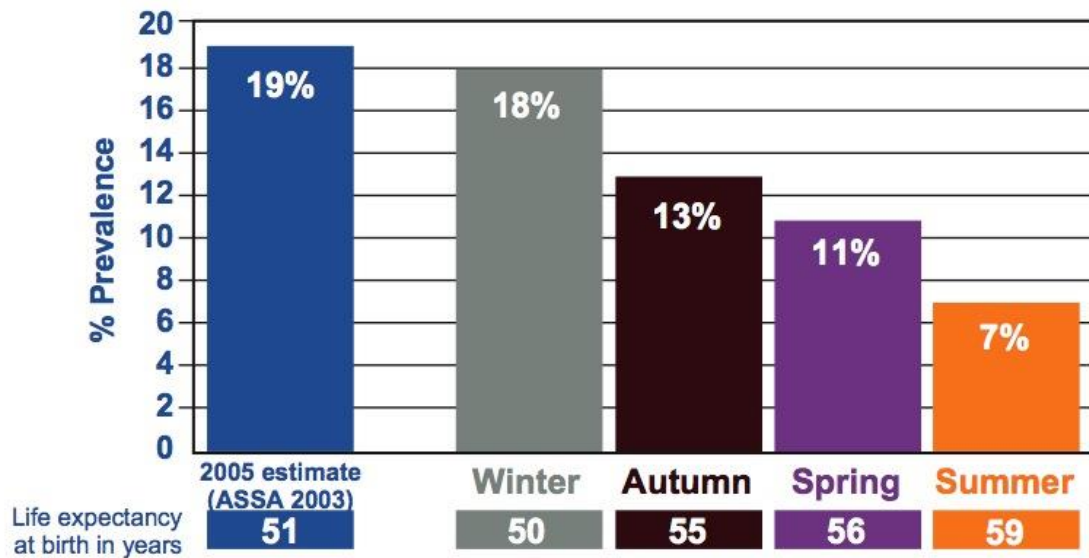
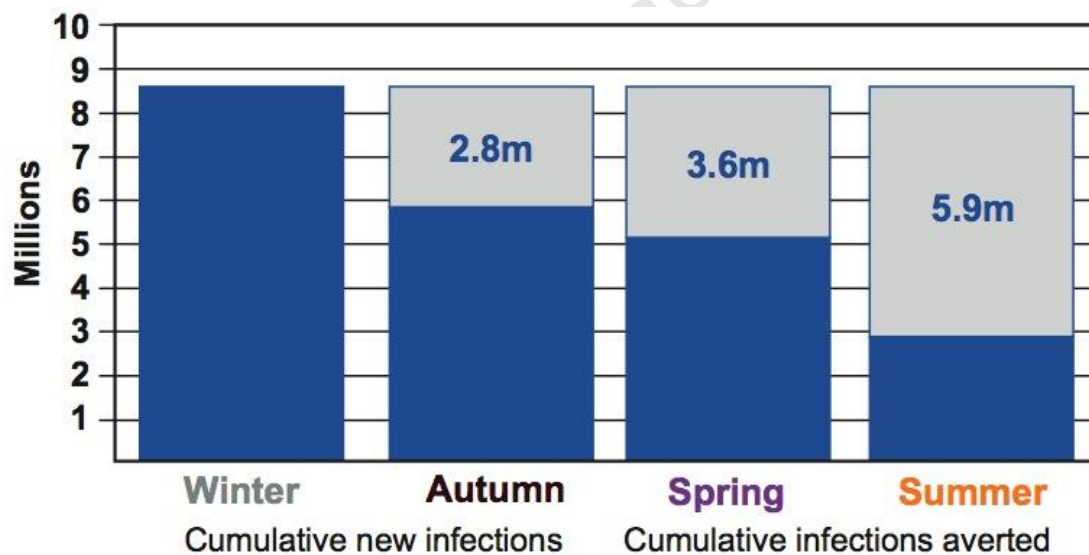


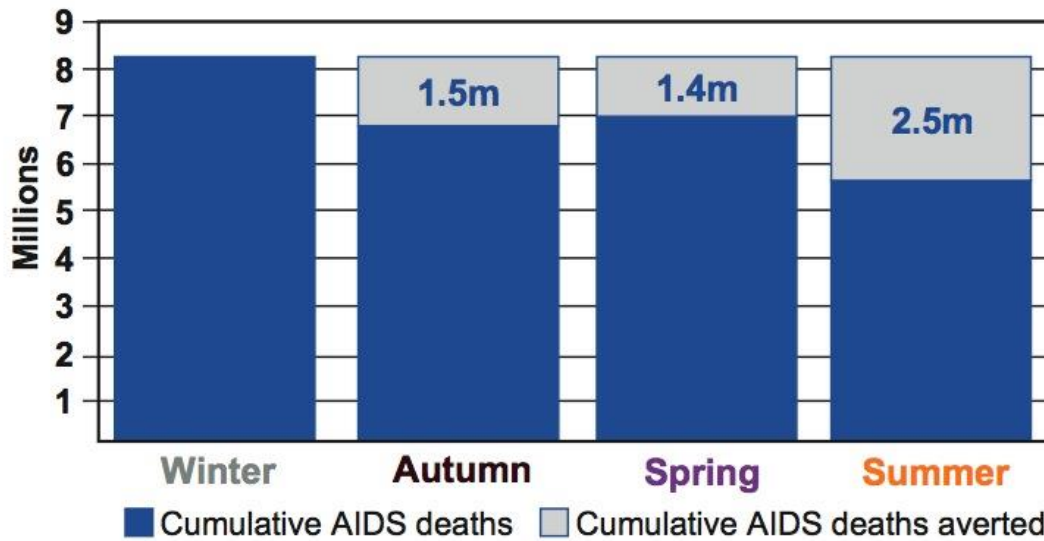
Figure 4.7<sup>29</sup>



**Note:** 5.9 million new HIV infections are averted in the Summer for All People scenario by 2025

Figure 4.8

<sup>29</sup> Source: [www.livethefuture.co.za](http://www.livethefuture.co.za), viewed April 2012. (Legend note text in original.)



**Note:** In the Summer for All People scenario we are likely to avert 2.5 million AIDS deaths by 2025

Figure 4.9.

#### 4.4.8 Project Publicity and Launch

Metropolitan Life partnered with Business Unity SA to launch the scenarios in early 2006, two and a half years after the project was first started. At first, the scenarios were launched primarily towards the business community, asking: “What role could businesses play in terms of these scenarios, and if they don’t play it where will we be in terms of the scenarios? And if they do play a role, can we achieve Summer?”<sup>30</sup> A year later, when the South African government’s National Strategic AIDS plan (NSAP) came out, the Metropolitan Life Foundation worked closely with it: it partnered with NSAP to do a national road show, taking the scenarios to business and policy leaders in the different provinces, and feeding content into the South African government’s own 2014 scenarios (See Chapter 4B, Section 4.9.9).

<sup>30</sup> Daniels Interview, March 2011. See Appendix 1.

#### **4.4.8.1. Community Action**

After this launch phase there was a lull during 2007-2008, following which the Metropolitan Life Foundation reprinted materials, renewed its Web site, and focused on turning the scenarios towards community education, specifically to stimulate and guide actions. This on-going work has been managed by Nathea Nicolay at the Metropolitan Life Foundation and Desiree Daniels who has been a consultant to the project. The idea was to: “develop a strategy for rolling it out into communities, to use as a community conversation tool. We compiled a whole book about responses: what should people be doing before or in each scenario; we looked at identifying people’s roles as individuals or members of families, communities, organisations or the macro environment—where on the HIV-AIDS spectrum could they get involved? Many were already involved in management of death or orphans. But we wanted to get them involved earlier. We had to address the ‘so what can we do?’ question.”<sup>31</sup> To this end, Daniels and Nicolay trained 20 facilitators in Western Cape to use the scenarios material as a catalyst for community-wide discussion. Part of the facilitators’ task in this regard has been to find appropriate partners to work with in communities. One example of this action has been the Sir Lowry’s Pass community, which was: “doing some things, for example a soup kitchen, but nothing at a deeper or more serious level. We partnered with different role-players there; had an organisation workshop with them, to which they invited different sections of their community. We looked at

---

<sup>31</sup> Daniels Interview, March 2011. See Appendix 1.



where they are, what are things they must stop or start or continue doing. Everyone ideally wants to be in Summer of course; our role was to turn that into actions: how to build that for the community.”<sup>32</sup>

#### **4.4.8.2 Live-the-Future Workshops**

Since 2009, the centrepiece of the Metropolitan Life Foundation scenario project implementation has been its scenario-based *Live the Future* community workshops. These seek “to create awareness, transfer knowledge, empower and inspire personal and group action.” The existence and purpose of workshops are explained as follows:

- **“Who can apply for a *Live the Future* workshop?** Any organisation that would like to address the health and related challenges around HIV, AIDS and TB in its community.
- **What is the cost involved?** The Metropolitan Foundation sponsors the fees of the *Live the Future* facilitators, the workshop material and, pending approval, the venue and equipment hire as well as catering and transport costs.
- **Who can benefit from a *Live the Future* workshop?** Everybody, including: corporates that would like to establish the driving forces behind the HIV epidemic in their own communities; small businesses that cannot afford expensive training and motivational workshops; NPOs that would like to collaborate with other NPOs, businesses and government departments; organisations faced with HIV-related

---

<sup>32</sup> Daniels Interview, March 2011. See Appendix 1.

challenges on a regular basis; community leaders and development workers; teachers and youth workers; and social workers.

- **How do I apply for a free *Live the Future* workshop?** Send an e-mail to [organiser email and phone number provided]. You will be sent a Workshop Request Form and, pending approval, an accredited *Live the Future* facilitator will be assigned to your group.”<sup>33</sup>

#### 4.4.8.3 “Respond to the Challenge” Document

As part of the community engagement phase, Daniels and Nicolay developed a further document “Live the Future: Respond to the Challenge” (Metropolitan Life Foundation, 2009b) which provides a framework for community action towards the *Summer for All People* scenario. This document outlines a six-step programme of action under the title “Planning to Realise Your Vision” and “Taking Up the Challenge” (Metropolitan Life Foundation, 2009b, 8; 2009b, 15). The key steps are:

**“Respond to the Challenge:** For us to achieve a *Summer for All People* in South Africa, we need ‘Leadership by All, at All levels’. Everyone can play an important part to make the *Summer for All People* a reality. To make a real difference, we need concerted, integrated and coordinated efforts by individuals and groups across the country. We believe that you can play a role in areas where you have influence, i.e. in your personal life, in your community and in your work or professional capacity.”

The Respond to the Challenge Document further renders and recommends specific actions towards change under the title: “How do you move from the current

---

<sup>33</sup> [www.livethefuture.co.za](http://www.livethefuture.co.za), viewed April 2011

scenario to your preferred scenario?" (Diagram: Metropolitan Life Foundation 2009b, 9):

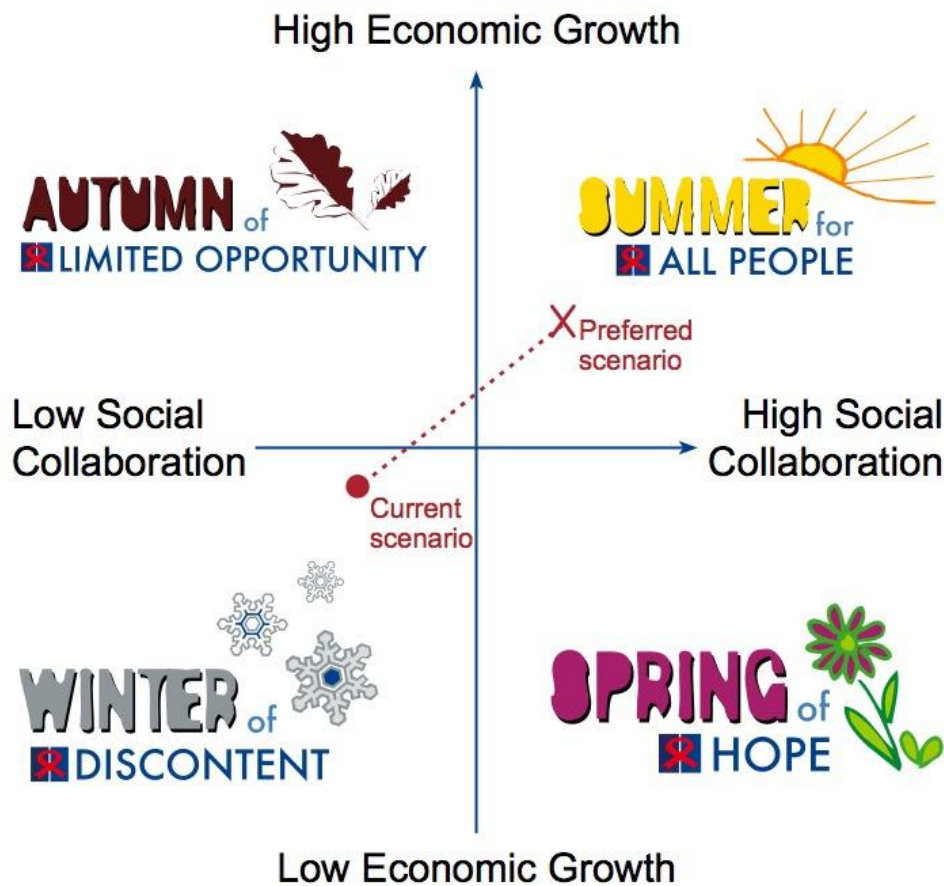


Figure 4.10

The community advisory is:

**"An individual level:** For example, you could go for voluntary HIV counselling and testing so that you know your HIV status.

**"A family level:** For example, provide a sibling who is living with HIV with love and care or speak to a family member about situations that may put them at risk of becoming HIV-positive.

**“A community level:** For example, participate in a community group that is providing HIV and AIDS prevention information to youth in schools.

**“An organisational/institutional level:** For example, you may volunteer your time to assist in the development of a workplace policy and programme.

**“A macro-level:** For example, you may work collaboratively with other institutions to implement strategies that are well coordinated and organise resources so that they assist those working at the other levels.”<sup>34</sup>

#### 4.5 Preliminary Analysis

The full analysis of these case studies, in terms of each other, in terms of the further scenario work it is contrasted to (via structured interviews), and in terms of the research question, is presented in Chapter 5. What appears here are preliminary observations to consolidate the presentation of the case studies before proceeding to presenting the interview results in Chapter 4B.

The projects are similar in that they are both situated in Africa, consider effectively the same 20-year future, and have a clear social and developmental agenda in addition to whatever other purposes they may have. Both stress uncertainty about the direction and nature of future developments; both examine change drivers and resulting trends, provide integrated stories of future outcomes, and consider the implications. Further, methodologically they follow a very similar scenario preparation (identifying drivers of change, predetermined elements, etc., in workshop forums) and then using fundamental axes of uncertainty (in a 2x2

---

<sup>34</sup> [www.livethefuture.co.za](http://www.livethefuture.co.za). Viewed April 2011

form) to provide the basis for four alternative pictures of the future, which they then elaborate in story form. It would be tempting to conclude merely that they both “use the scenario method,” but this would appear to miss fundamental differences in purpose of approach and attitude to constraint conditions that underlies each project.

In *Eco-Resorts of the Future*, while definite ideals and outcome-preferences are held by the client and by the facilitating organisation (Arup Foresight), particularly to do with eco-sustainability and African rural social and economic development, scenarios are not built around the elaboration of these ideals coming to pass vs. not. The aspirations of the scenario developers are not intrinsic to the construction of the scenarios. Rather, there is an attempt to perceive the variety of outcomes and advance organisational goals in each scenario; that is, to consider how the principles and aspirations of the scenario makers or the scenario client may be achieved in any of various alternative plausible model future worlds—with none of the worlds being strongly strived for *prima facie*, nor expectation that such striving would bear fruit. The *Live the Future* scenarios are also created with a strongly held goal: to change (improve) future outcomes concerning the AIDS epidemic in South Africa. But in this case the scenarios are built directly around the elaboration of the preferred outcome emerging vs. not, that is, the aspirations of the scenario developers is intrinsic to the construction of the scenarios. There is no suggestion that stakeholders should be ready to adapt as best as possible to each of the scenarios, nor are mechanisms offered for best managing in each. Rather the scenario develops preferred vs. dispreferred

outcomes, which are used to guide an agenda for stimulating people, communities, and policymakers to make choices to bring the preferred outcome into being. Implied in these two approaches are different perceptions about the extent to which external forces (constraint conditions on a desired outcome) may be shaped: *Eco-resorts of the Future* perceives little power to influence external macro-variables that will shape the Tanzanian tourist sector; *Live the Future* perceives significant power of the scenario organisation (including its wider contacts and influences) to influence the future course of HIV-AIDS in South Africa. It seeks to push back against and overcome what appear to be “given” constraint conditions, and influence the future towards the *Summer For All People* outcome through consciousness-raising and collaborative action, and changing behaviour (at the individual, family, group, organisation, or macro level). As will be theorised in Chapter 6, the coherence of the scenario set and possibility of effective follow-on implementation depends on whether the assumption of influence (or non-influence) over constraint conditions is a valid assumption.

## **Chapter 4B**

### **Research: Project-Based Structured Interviews**

#### **4.6 Overview**

Chapter 4A presented the research into two case studies chosen to investigate the research question. However, as described in the research methodology section in Chapter 1, further case investigations were necessary to broaden the reference base of scenario projects under analysis, to verify to what extent, if any, the findings of the two primary case studies were academically generalisable. This chapter therefore continues to present the research content began in Chapter 4A by presenting the content of the project-based structured interviews with scenario practitioners, or project sponsors, as conducted by the researcher. Each interview considers a specific real-world scenario project, as referenced. These interviews, when considered alongside and in addition to the case studies, form the original research material basis for the argument of the dissertation. Therefore it is necessary to reproduce this material at some length, to allow independent consideration and verification of conclusions drawn by the researcher in the chapters that follow.

The interviews were conducted between February and June, 2012. Situational information referring to name of scenario project, source document, date and place of project, interviewee, and date of interview is provided. The interview transcription format follows the six-question framework followed in each case, and reflects the interviewee list, as outlined in Appendix 1. Interviewee responses have been edited for reasons of length and clarity—including omitting repeats, fixing

verbal grammar where necessary for written communication, and joining up text where interviewees returned to answer a question more fully later in the process—but otherwise faithfully and accurately record the answers of the interviewees. All of the interviews were audio-recorded, and these records are readily available from the researcher. Analysis of interview findings, and discussion of insights as to the research question are presented in Chapter 5, as a basis for the final argument of the dissertation, which is presented in Chapter 6.

#### **4.7 Selection of Projects and Respondents**

In conducting field interviews of this type, various considerations arise in choosing scenario projects to investigate and, once chosen, assessing the best respondent to speak for that project. Beyond what has already been specified in Chapter 1 (Section 1.7.7.4), issues of project selection were considered and resolved as follows:

##### **4.7.1 Selection of Projects**

Subjects were recruited through purposeful sampling, in which the aim was to interview representatives of a sample of (a) typical projects—where the project is judged to be a well-representative sample of the population, and (b) diverse projects—where diversity reflects the spread of the population of projects. Achieving this spread in the sample mitigates bias in the study that would be introduced through too narrow a base, either geographic or conceptual. In the event, this spread was achieved through wide diversity in project type, sector and location.



#### **4.7.1.1. Document Study**

In this search-and-selection phase of determining which projects to investigate and to find interview respondents for, the researcher investigated his own resource base of over 100 scenario projects, as well as gathering and assessing many dozens of other project reports, principally from the resource base of 550 scenario project reports provided in the public domain by the Millennium Project.<sup>35</sup> These projects were analysed with a view to criteria (a) and (b) above, to create a long-list of representative work for further investigation, which was then winnowed down to a short-list for interview contact based on criteria of diversity as follows:

- Location. The projects under study cover a broad spectrum of North American, European, Asian, and Australian work in the field. Special consideration of South African and African projects is considered below.
- Industry or sector area of the project. The projects under study reflect a wide spread of industries and sectors, including food, tourism, biotechnology, logistics, information technology, libraries, and finance, among others.
- Client type. The projects chosen for study represent a spread of for-profit, non-profit and government work.

#### **4.7.1.2 Age Restriction of Projects Under Study**

It was appropriate to restrict projects under study to those done in the last 10 years. This was (a) to ensure greater currency of topics, perspectives, and use of methods among the sample, and (b) in recognition that the answers to the questions posed

---

<sup>35</sup> The bibliography is at <http://www.acunu.org/millennium/sof/app-f.html>. Viewed November 2011

relied in part on the memory of the respondents. It was felt that 10 years was a realistic limit on accurate recollection of past project work processes.

#### **4.7.1.3. African Orientation**

While conforming to the demands of the previous selection criteria, there was also (as mentioned in Chapter 1, Section 1.7.2.1) a specific aim to include African scenario work, in recognition of the research location of the dissertation, the nationality and relative specialisation of the researcher, and the particularly rich contribution South African scenario work has made to international theory and practice in the field. In the event, two South African scenario projects, and one from Zimbabwe and one from Uganda, were used. (This is in addition to both primary case studies being of African orientation, as presented in Chapter 4A.)

#### **4.7.2 Scenario Method**

The projects under study were purposefully restricted to the “2x2” scenario construction method.<sup>36</sup> While the researcher very well recognises the criticisms of this method (as discussed in Chapter 2, Section 2.7.3.1), the 2x2 approach remains far and away the most commonly practiced scenario construction method in the field. Given this, it was perceived that there was little compromise in limiting projects sampled to those that followed this method, while there was great research

---

<sup>36</sup> The “2x2” axis scenario building approach is associated with Shell Oil and the Global Business Network, based on early methodology work by Herman Kahn and RAND. According to the approach, a set of key driving forces is identified; these are sorted into predetermined elements vs. critical uncertainties; and two of the critical uncertainties regarded to be highly important in terms of their future development and effect on the organisation are chosen to form the axes of a matrix. This matrix determines the primary logic of the scenario storylines.

benefit in being able to compare projects effectively: holding method as a constant, attribution of effects of the project that may follow from method could be factored out and it became possible to compare project purposes, constraint conditions, and outcomes to each other directly, without accounting for method effects. It is noted that the case studies in Chapter 4A were also projects that used the same 2x2 methodological base. Similarly, this allows the findings of the interviews and the case studies to become directly comparable. The applicability of the research findings to projects that use other scenario construction methods is discussed in Chapter 6 (Section 6.8.3) as an item for further study.

#### **4.7.3 Selecting the Interviewees**

Once the scenario project was identified, there remained the question of who to ask to represent the project for interview purposes. Given the close connection between the questions asked and the particular project as it was developed and used, there were effectively only two type of credible respondent: (a) the project facilitator, who ran the project; or (b) a senior representative of the commissioning organisation who was closely involved in the process. Interviewees were contacted by email or phone, often both, to explain in general terms the goals of the research project, and to request and set up a suitable appointment time.

#### **4.8 Form of the Interview**

The interviews were conducted either in-person, or via phone (or Skype) link. Generally they took between 30-60 minutes. Respondents were asked for

permission to record the interview for note-taking purposes, and academic verification if necessary. They were asked for permission to use the information from the interview for academic research purposes, and all agreed. A table of interviews including respondent, organisation, and date of interview is listed in Appendix 1. The recordings of the interviews are available from the researcher.

#### **4.8.1 Interview Questions**

The interview began with establishing the permissions noted above, and explaining the general purpose (Ph.D. research and publication) of the study. Specific elaboration as to the particular purpose of the questions, or detailed elucidation on nature of the study, or elaboration of preliminary findings and perceptions—where sought by the interviewee—were held back until the end of the interview in order not to prejudice answers given or otherwise compromise the rigour of the process. Factual information, including the exact name and date of the project under study, as well as the name and title of the interviewee was gathered at the beginning or end of the interview, or from project documents. Following a short introduction, which centred on the permissions as discussed above, the questions posed to the interviewee were as follows:

1. Who was the commissioning organisation (or sponsor) of the project, and what is that organisation's core mission or key purpose?
2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?
3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?

4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are [named by the interviewer, as per specific case under study]. To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?

5. With reference to the matrix, it appears that one [alternatively, two; alternatively, none] of the scenarios [named by the interviewer] describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?

6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?

#### **4.8.2 Rationale of the Questions**

The questions were specifically targeted to the investigating the research question, as defined in Chapter 1 (Section 1.5). Question 1 probed the pre-existing and continuing purpose of the commissioning organisation, allowing reflections on the congruence between this and the purpose sought or achieved in the scenario project. Question 2 sought elaboration of the answer to Question 1 to further investigate why, according to the interviewee, a scenario approach had been chosen and what purpose it was expected or hoped it would fulfil. Question 3 determined who (other than facilitators) participated directly in the project, which prepared consideration of Question 4, which assessed how much influence over the external environment the working group or organisation representatives perceived themselves to have (either in themselves or via wider vectors of influence they could muster) by asking to what extent the outcomes of the uncertainty axes were

perceived to be under the control or influence of the participants: (did they expect to be able to influence outcomes as represented by the axes, or did they think the primary drivers of uncertainty in their future were beyond their influence). Question 5 focused on the uncertainty matrix, which is the foundational process step in 2x2 matrix scenario building, and reflected to the interviewee the researcher's perception of the presence or absence of "good vs. bad" scenario outcomes for verification; and continued to ask how this, in the view of the interviewee, integrated with the overall purpose and use of the scenarios. Question 6 determined how the scenario project had been put to use in practice, or to what extent this had been lacking, with a view to eliciting the interviewee's explanation for implementation-phase success, or lack thereof.

## 4.9 Interviews

### **Interview 1. Columbia Basin Trust: Shaping Our Future Together**

**Source Document:** Columbia Basin Trust. (2010) *Shaping Our Future Together: 2010 Columbia Basin Symposium, Scenario Planning Summary Report*.<sup>37</sup>

**Date and Place of Project:** October 2010; Revelstoke, British Columbia, Canada

**Interviewee:** Juliet Fox, Future IQ Partners & Innovative Leadership (Menomonie, Wisconsin, USA): Lead Facilitator of the project

**Date of Primary Interview:** March 12, 2012

#### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The Columbia Basin Trust is a wealthy foundation in the British Columbia region along the US-Canada border. (The USA dammed up the Columbia Basin River and backed up all the water to Canada—and therefore had to pay out a large sum over a long period of time to the Trust. The Trust runs the dam's hydro-electric plant as well.) The Trust is responsible for community and environment planning and development of the region, and exists to feed resources into the British Columbia region. According to the scenario report document (CBT 2010): "Columbia Basin Trust supports efforts by the people of the Basin to create a legacy of social, economic and environmental well-being and to achieve greater self-sufficiency for present and future generations."<sup>38</sup>

#### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

---

<sup>37</sup> The report is available at [http://www.cbt.org/uploads/pdf/SymposiumReport\\_web\\_FINAL.pdf](http://www.cbt.org/uploads/pdf/SymposiumReport_web_FINAL.pdf). Viewed March 29, 2012.

<sup>38</sup> The Columbia Basin Trust web site ([www.cbt.org](http://www.cbt.org); viewed 29 March, 2012) adds the following: "Created by the residents of the Columbia Basin, Columbia Basin Trust (CBT) serves the people who live in the Basin and assists communities in addressing their needs by: providing resources and funding; focusing on local priorities and issues; bringing people together around key issues; providing useful, credible, accessible information and expertise; encouraging collaboration and partnerships; seeking ongoing input from Basin residents; and investing prudently in Basin power projects, businesses and real estate."

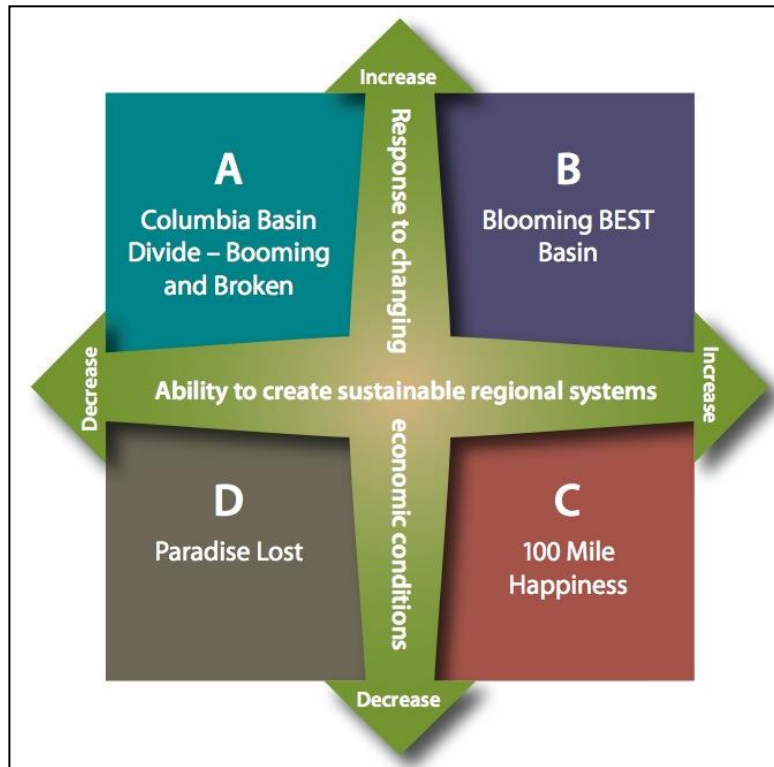
Being well funded, there are a lot of arguments within the organisation and among stakeholders about how resources are spent. The Columbia Basin trustees were finding that people were mistrusting the way funds were being spent. Their priority was therefore to have a process “that was obviously not coming from them, that was obviously not top-down.” They wanted to raise the issues facing the region in the future, get stakeholders to be pulled out from own local agenda, into a wider perspective, and allow people to see the consequences of action vs. inaction and choose their preferred outcome. But above all, they were very keen on having an authentic transparent process: to have a grass-roots point-of-view, to build future thinking with the clear input of citizens—bringing a lot of people together to decide how resources are to be used and for them to see they were part of the future-thinking process. This is why scenarios were important for them, and why they picked us (the consulting firm Innovative Leadership) who specialise in this. The scenarios were built by over 300 participants with different backgrounds and stakeholder interests, from all over the region—it all fed input into the project rationale. The scenarios were about the difference between where the Trust is and where the participants want them to be. The scenarios were like a “listening tool” to listen, and to influence programming on the basis of this.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

As answered above, there were 300 stakeholders, organisations, groups, businesses, and associations, all with a common interest in the future of the region.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Ability to Create Sustainable Regional Systems” (increase vs. decrease) and “Response to Changing Economic Conditions” (increase vs. decrease). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**





**Figure 4.1** Source: Columbia Basin Trust. (2010) *Shaping Our Future Together: 2010 Columbia Basin Symposium, Scenario Planning Summary Report*, p.10.

The project exposed the axes of uncertainty according to the group, to the group, to create discussion about consequences and to do something about it because the Trust is a funding agency for the region. Through the scenarios the Trust and its stakeholders were saying: “This is where we want to be (in response to the axes of uncertainty) and this is where are we now towards getting there. What decisions are we making currently and where are they taking us? What should we be doing?” It was all towards creating action and influencing outcomes. It was about getting stakeholders into the dialog and decision-making; helping them see how they are creating the pathway forward and therefore to think about what they want the future to be, and thinking about the consequences of their actions—therefore what actions to take today. So the assumption of ability to influence outcomes was there.

**5. With reference to the matrix, it appears that one of the scenarios, “Blooming BEST Basin”, describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

Our intent was not to define an ideal or to get one scenario to occur; it was rather to find a way forward that represented a commonly held view or belief of the participants. Having said that, the “Increase x Increase — *Blooming Best Basin*” scenario was clearly preferred. But I should add that the one below it (*100 Mile Happiness*) had a lot of characteristics the participants were interested in having—anti-industry, pro-environment; pro-crafts; anti-big timber. I would say that two of the scenarios (the top two) were better outcomes than the other two. There were definitely better ones and worse ones.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

The Columbia Basin Trust has “analysis paralysis”. I believe they have a person to use the scenarios in community conversations. I’m not sure where they are at with that. If we had continued with the implementation process it would have been along the lines of our “long-term engagement” phase. In doing this we engage 5-10% of the population in face-to-face or electronic contact. We train facilitators; create facilitated conversations across the community, sectors, age, etc., and get broad community input on the preferred outcomes presented (and perceptions on what capacities need to be built to achieve it). We do a capacity assessment and look for lowest-hanging-fruit actions, but it is not so much about pursuing an ideal future; this phase is to get them (community participants) wrapped around the scenarios. It is about having a (wider) contextual conversation that is illuminated by what the (scenario-building) community perceived as more ideal. It is also about creating systems for on-going stakeholder conversations about the future; building a culture of dialogue about the future, a conversation about where we want to go. In this the scenarios are a “living document” for developing further engaged input and action. It is getting the broader participants thinking about what they want the future to be, and whether the consequences of their actions are in line with that. The scenarios foster context; a power of understanding that comes from seeing the integration between their local agenda and the wider long-term consequences.

## **Interview 2. Trade Knowledge Network: Agriculture in Southern Africa**

**Source Document:** Draper, P., Kiratu, S., & Hichert, T. (2009) *How Might Agriculture Develop in Southern Africa? Making Sense of Complexity*. Winnipeg: International Institute for Sustainable Development.<sup>39</sup>

**Date and Place of Project:** 2008, Harare, Zimbabwe.

**Interviewee:** Tanja Hichert, Institute for Futures Research, Cape Town. Co-lead Facilitator of the project.

**Date of Primary Interview:** March 16, 2012.

### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The project was commissioned by the Trade Knowledge Network (TKN), funded by the International Institute for Sustainable Development (IISD), Canada. The TKN's purpose is to build capacity and increase knowledge in Africa about trade and trade agreements, and how to navigate the world of international trade. The IISD has funded TKN on various projects and in this case TKN had the freedom to use the money as it best saw fit.<sup>40</sup>

### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

The aim was to make sense of complexity in this area: to have more clarity about a very complex, interconnected set of topics and how they could play out in future. Bear in mind that agriculture, agricultural development, trade in agricultural goods, and investment in agriculture is all comparatively a big unknown in Africa. People outside Africa have much better access to knowledge than Africans do. Peter Draper of the South African Institute of International Affairs, and head of TKN, had some

---

<sup>39</sup> The report is available at <http://www.iisd.org/publications/pub.aspx?pno=1135>. Viewed June 6, 2012.

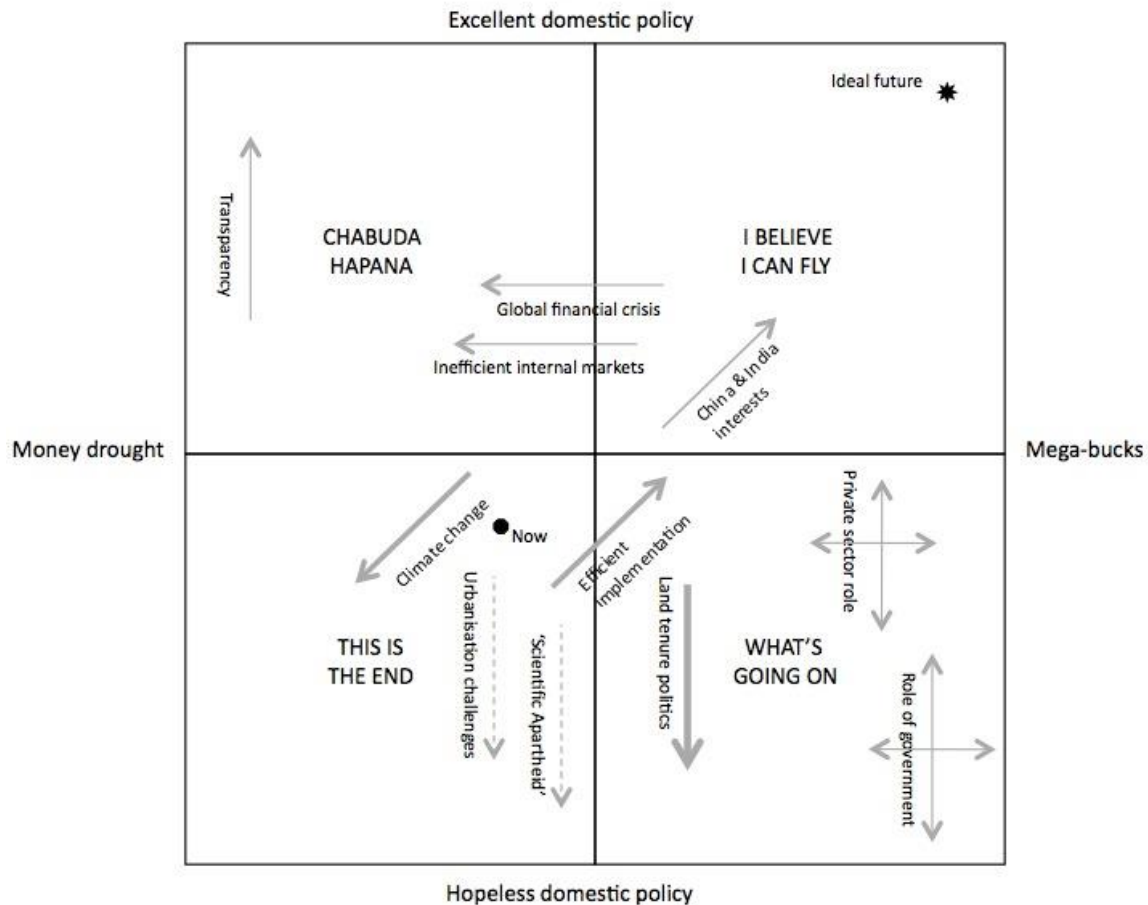
<sup>40</sup> The role of TKN and IISD is further provided by the report (Draper, P., Kiratu, S., & Hichert, T. 2009, p.ii): "Coordinated by the International Institute for Sustainable Development, the TKN links network members, strengthens capacity and generates new research to assess and address the impact of trade and investment policies on sustainable development. The overarching aim of the TKN is to help ensure that trade and investment contribute to sustainable development, with social development and the environment equitably addressed in trade and investment policies."

experience of using scenarios in a previous WTO project, and thought it would apply to agriculture specifically. It was a learning exercise, for the sake of learning more about unknowns. There were no imminent investment decisions or anything like that. The aim was to have African people more knowledgeable about trade issues in agriculture—what is the case now, and what might be the future.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

Peter Draper, wearing his “TKN hat”, had commissioned four country briefing papers and background papers to do with food security and trade, from Mozambique, Namibia, Zimbabwe, and South Africa—setting out the broad contours of the World Trade Organization (WTO) dynamics concerning agriculture under the Doha Development Agenda. We all gathered in Harare, papers presented as precursor to scenarios. The delegates were mainly agriculture and trade people from the region, both governmental and non-government. We had Zanu PF people in the room.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Investment Environment (megabucks vs. money drought) and “Domestic Policy” (Excellent vs. Hopeless). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.2** Source: Draper, P., Kiratu, S., & Hichert, T. (2009) *How Might Agriculture Develop in Southern Africa? Making Sense of Complexity*. Winnipeg: International Institute for Sustainable Development, p.16.

The “Megabucks” vs. “Money Drought” axis of uncertainty had to do with the external level of investment in agriculture, and there was no sense of control over this. But there were people who had say about food security and trade-policy issues in the room. There were no direct agricultural policymakers from Namibia or Zambia, but there were from Mozambique and from Zimbabwe, and it would be reasonable to say they had influence.

**5. With reference to the matrix, it appears that one of the scenario outcomes, “I believe I can fly”, describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

An ideal scenario was not the aim: the intention was not to have fantastic-ideal vs. horrible. The intention was to work with the most uncertain high-impact drivers and see what they gave us in terms of plausible futures. However *I Believe I Can Fly* is certainly a better scenario for the region when compared with *This is the End*. But many people thought *Chabuda Hapana* (nothing comes out) would better—we don't have money flowing in, as in *I Believe I Can Fly*, so we have to muddle our way through and get better at policy, and then money will flow in in the right way. In this sense the both “excellent policy” scenarios were equally good. So on the policy axis there was a clear value dimension, a clear good vs. bad. On the money axis the value dimension is unclear—more money can be both good and bad. There is an assumption that money input, whether from private sector or donor organisations, that money is good or always has the best interests of African agriculture at heart, but they don't. The money they might put in can help create any of the four futures we laid out, not necessarily the best ones! Foreign institutions are serving their own purpose as much as anything else. What will create better future is work on the policy side plus fixing land tenure issues: “fix thyself” was the big learning!

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

They were published and disseminated, put to use in the TKN as a learning exercise. It was ultimately never more than a learning exercise; a process of illumination. It is certainly not apparent that the scenarios were used to improve domestic agricultural or trade or food security policy. But the scenarios did meet the purpose of making sense of complexity. The single big realisation was that a huge flow of money into African agriculture would not necessarily be a good thing.

### **Interview 3. Public Library Network, New South Wales: The Bookends Scenarios**

**Source Document:** Neville Freeman Agency. (2009) *The Bookends Scenarios: Alternative Futures for the Public Library Network in NSW in 2030*.<sup>41</sup>

**Date and Place of Project:** 2009, Sydney, Australia,

**Interviewee:** Oliver Freeman, Director, Neville Freeman Agency, Australia. Lead Facilitator of the project.

**Date of Interview:** March 23, 2012

#### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The project was commissioned by the State Library of New South Wales (SLNSW), on behalf of what they defined at the time as "The New South Wales Public Library Network". That latter entity does not exist, but the SLNSW didn't see the project as being related just to the state library itself, although the State libraries in Australia are very big research and copyright libraries in themselves. SLNSW is a big research, copyright, and public library.

#### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

Participants from SLNSW were interested in informing themselves as to the impact of the future on their State library and their vision of their role going forward. The main concern was to bring professional librarians in NSW together to look at impacts of the future on role of public libraries. They were seeing the role of libraries as becoming "contestable": all sorts of things are going on in terms of funding, technology, demographics—and they wanted to get a sense of what these alternative futures hold and the impact they might have on the public library network. They were interested in provision of public library services and how this might change in different futures. As to "why scenarios?" The specification for project did call for scenarios specifically: they were sensitive to the fact that scenarios might help them get somewhere new in their thinking. There had been

---

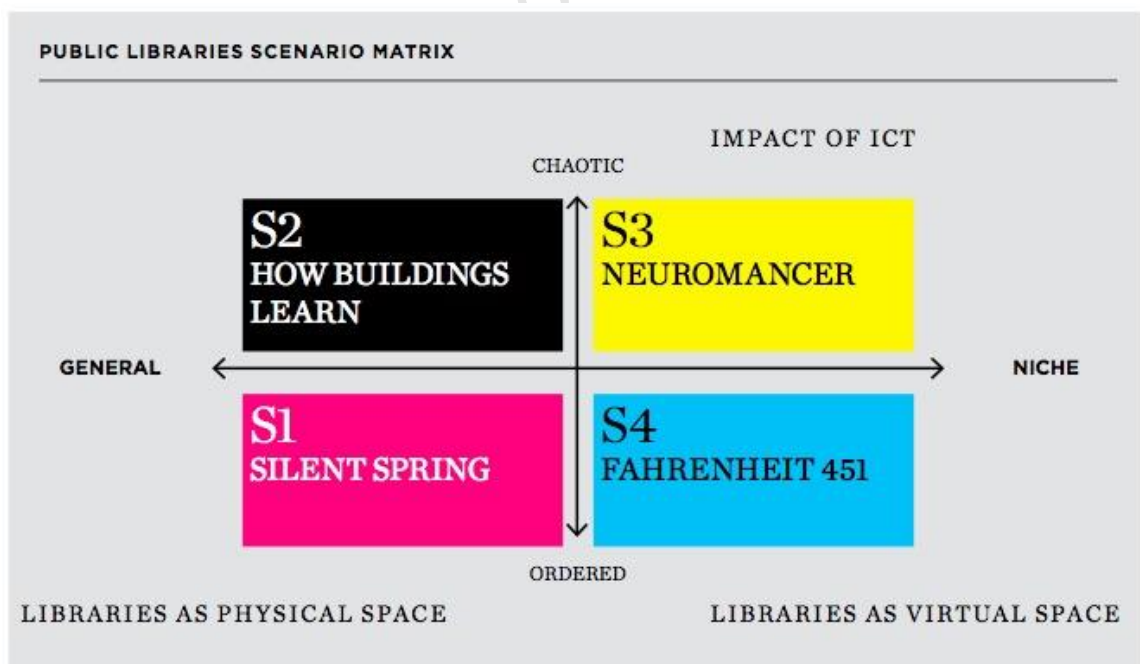
<sup>41</sup> The report is available in the New South Wales Public Library:  
<http://library.sl.nsw.gov.au/search/X?scenarios>; Viewed April 9, 2012

some work had been done in New Zealand using scenarios to think about strategic implications for libraries, so that was a model for them to build on.

### 3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?

Aside from the Neville Freeman Agency (the facilitating company) the core scenario-building team was made up of representatives of the major libraries in New South Wales. We were backed up by the NSW Public Libraries Research Committee. The interviewees for the project were all library representatives, and we had some outside foresight people and library futures experts from the USA. Essentially it was library-insiders who made the project.

### 4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Impact of ICT” (chaotic vs. ordered) and “Nature of Libraries” (physical vs. virtual). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?



**Figure 4.3** Source: Neville Freeman Agency. (2009), *The Bookends Scenarios: Alternative Futures for the Public Library Network in NSW in 2030*, p.21.



All inputs, including these, came from the group. We got to a larger list uncertainty vectors, and then did a group “merge and purge.” There is a certain amount of “facipulation” (sic) that we do on top of this. We know it is important that we get to the ‘aha’ set of scenarios. Our role is to help them get to a rich outcome. Could the participants or the broader SLNSW influence the world to the extent of changing axes? No. The uncertainties were absolutely beyond their control. We see it as critical that scenarios are scenarios relating to the external environment of the system of interest. We can do lots of work that is internal to the system. But this kind of work is about the interface between the system and its external environment.

**5. With reference to the matrix, it appears that none of the scenarios describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

We at Freeman Associates have a specific method that I should explain. We start with a “preferred future” (vision) that the organisation would like to see (also revealing a mission statement). This tells us what are the events that need to happen for that future to come about. We map that. But then we recognise that some events are contestable! They don’t need to happen, and they won’t just happen because the organisation wants them to happen. The questions is “How do you use scenarios so you avoid the scenarios being just carriers of your vision?” These contestable items become the first uncertainties; we add others and we then use all this to frame up scenarios. The result may fall out to utopia/dystopia worlds, but this is not the aim of the exercise. We have done our preferred future *before* we get to scenarios. We start with the vision, but understand that many elements of it are contestable. In this particular case, however, there was not enough funding to do the vision part. We just did phase two. But the point of phase two, the point of the of scenarios as a whole, was telling us what are the things we need to do to intervene in the external environment to get us somewhere we prefer.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

I’m sorry to say that nothing has happened after the session! The 150 people who were involved in the project came away having had a good time, and got a lot out of

it. In this case, the problem is the system of interest behind the project was the public library network – which doesn't exist! So there is no direct organisational system to take it forward—that is looking to adapt itself or generate new policies in order to help be more resistant to a turbulent future, although the SLNSW could have picked it up itself (but didn't).

#### **Interview 4. Arctic Council: The Future of Arctic Marine Navigation**

**Source Document:** Arctic Marine Shipping Assessment of the Arctic Council's Protection of the Arctic Marine Environment Working Group. (2008) *The Future of Arctic Marine Navigation in Mid-Century: Scenario Narratives Report*.<sup>42</sup>

**Date and Place of Project:** Q1, 2007 to Q2, 2008; San Francisco, USA, and Helsinki, Finland

**Interviewee:** Dr. Eric Smith, Senior Practitioner, Global Business Network, a Member of the Monitor Group. Lead facilitator of the project.

**Date of Interview:** March 13, 2012

##### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The sponsoring organisation was the "Arctic Council" that represents the seven Arctic states— Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden, and the USA, plus indigenous representatives. The US Arctic Research Commission had a working group: the "Protection of the Arctic Marine Environment" (PAME), chaired by Dr Lawson Brigham. The aim of the organization is to promote co-operation and sustainable growth in the region. The Arctic Council represents and facilitates a political dialogue among stakeholders in The Arctic. "It is the UN of the Arctic."<sup>43</sup> The kinds of questions they were wrestling with were environmental protection; seagoing safety; land rights; what kinds of regulations, agreements, treaties should be put in place now in order to preserve the environment in the Arctic, plus ensure marine safety systems, plus protect the rights and representation of governments and indigenous people of the Arctic.

##### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

---

<sup>42</sup> The document is available at:

[http://www.gbn.com/articles/pdfs/GBN\\_Future%20of%20Arctic%20Navigation%20Mid-century.pdf](http://www.gbn.com/articles/pdfs/GBN_Future%20of%20Arctic%20Navigation%20Mid-century.pdf). Viewed March 30, 2012.

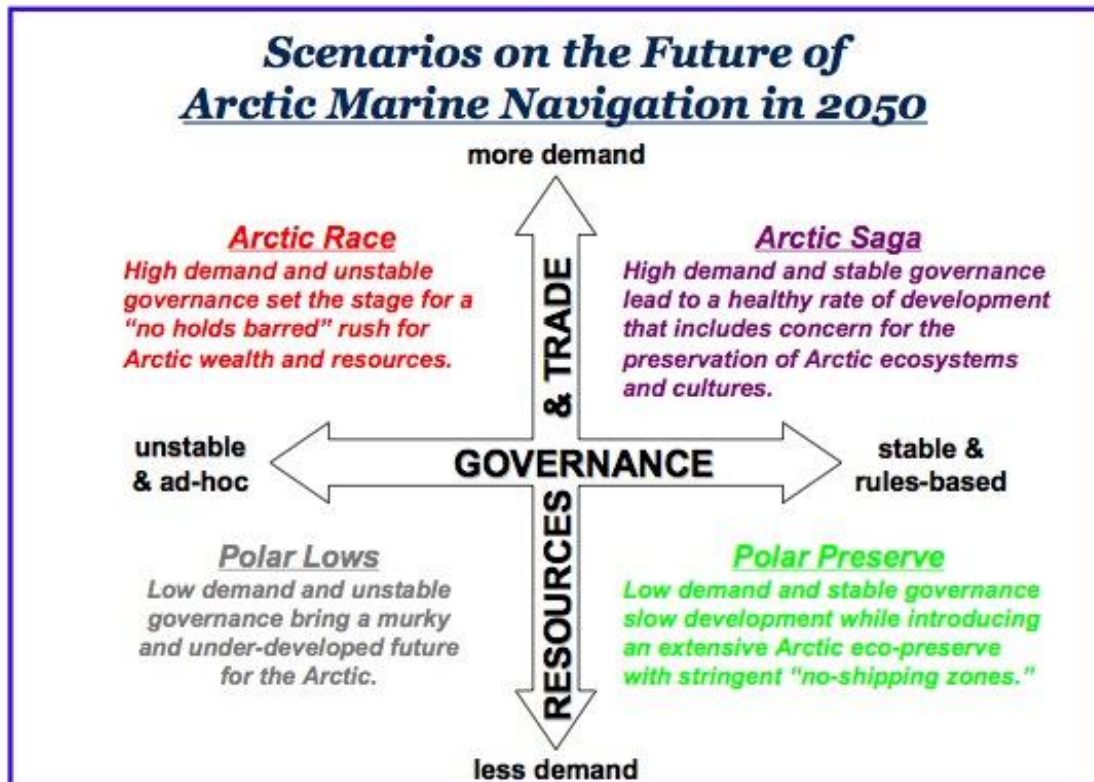
<sup>43</sup> According to the Arctic Council web site "The Arctic Council is a high-level intergovernmental forum to promote cooperation, coordination and interaction among the Arctic States." <http://www.arctic-council.org/index.php/en/about>. Viewed March 30, 2012.

The goal of using the scenarios was to think through what kind of policy recommendations the Arctic Council should be creating and making now to achieve common goals in the future, particularly in the face of rapidly changing ice structure. The aim was to facilitate a dialogue process to get to creation of the right policy-regulation recommendations. In this particular situation, Brigham found the “multi-stakeholderliness” in the region was quite extreme. He was frustrated at lack of movement on key issues. Representatives of the Arctic states had multiple competing interests and no clearly agreed to treaties or framework for governance. At the same time, conditions were changing – particularly ice receding and the real possibility of an ice-free summer for many parts of the region, which opens up lots of possibilities for freight traffic; mineral extraction, oil drilling, fishing—which has implications for the environment, for marine safety, and so on. “It was a situation where different stakeholders with different competing interests were having a very hard time getting to have a structured conversation about how to think about the future together.” This is one of the times when scenarios are very helpful—because scenarios are hypothetical and about situations that are relatively far off—for groups who have disagreements in the present, talking through hypothetical situations rather than actual disagreements allows the conversation to move a lot further a lot faster

### **3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

In total there were three workshops; the first in April 2007 at the GBN Offices in San Francisco; then a regional implications workshop in Helsinki in July 2007; and an environmental implications workshop in San Francisco in early 2008. The workshops each had around 30 people, made up of various experts or stakeholders in the field: climate change experts, Arctic Council representatives, and shipping and mineral-mining stakeholders.

### **4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are: Resources and Trade (more demand vs. less demand) and Nature of Regional Governance (stable and rule-based vs. unstable and ad hoc). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.4** Source: Arctic Marine Shipping Assessment of the Arctic Council's Protection of the Arctic Marine Environment Working Group. (2008) *The Future of Arctic Marine Navigation in Mid-Century: Scenario Narratives Report*. p.5

After much group process we ended up with a short list of top 10 uncertainties. Each of four groups tried out different 2x2 combinations; then we debated (the efficacy of) them. Various had prioritized climate change, for example. "In the end what we got to was a nice blend between uncertainties they have control over vs. those they don't have control over. So it's a bit different than, say, what a corporation might want, where it really only wants to look at things beyond its control." It felt like it was a good blend between forces within the Arctic and forces outside the Arctic: governance is within the control of the stakeholders in the room; resources and trade is partly within the Arctic control, but allowed us to bring in uncontrollable forces and factors from the outside world.

5. With reference to the matrix, it appears that one of the scenarios "Arctic Saga" describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?

Looking across the four, one can see that *Saga* is the happier scenario; future that is better for more stakeholders in the region. *Polar Lows* is more challenging for more of the stakeholders. The other two are a mix; they are good or bad depending on who you are.

*Polar Preserve* is better for environment activists and indigenous populations; 'Arctic Race' is better for energy companies and mineral-mining and shipping and a bit of a mix for indigenous. This was scenario-making as inspired by Jay Ogilvy (a GBN founder): about creating better futures. These are "normative scenarios," using scenarios for alignment and collective visioning rather than objective strategic choice (for example, as per corporate use.) When the decision-making group is multi-stakeholder, the role of the scenarios is to create one vision of how good the future could be if they all were to work together.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

The scenarios became a chapter of the 1,000-page AMSA (Arctic Marine Shipping Assessment, as originally intended. Brigham had said "there is this massive assessment; we need scenario planning to help a multi-stakeholder group to think about the future and to test dialogue around recommendations. The work was therefore used in discussion and decision sessions that set the stage for recommendations that the Arctic Councils made to the relevant governments concerning environmental policy and shipping safety in the region going forward. Part of it was about trying to steer to the "vision" scenario. But we also wanted to make sure that policy recommendations took into account the dynamics of the other three scenarios—that we set in place a discussion about the merits and demerits of the other three. The outcome: as Arctic Council members and stakeholders thought about their policy recommendations, they thought about which scenario their recommendations would accelerate or decelerate!

**Interview 5. Cofisa: Biotechnology Scenarios for the Eastern Cape (South Africa).**

**Source Document (report):** Non-Zero-Sum Development. (2009). *Three Biotechnology-Related Scenarios for the Eastern Cape*.<sup>44</sup>

**Date and Place of Project:** October 2008 to February 2009; East London/Mdantsane

**Interviewee:** Dr. Bob Day. Founder and Co-Director, Non-Zero-Sum Development, Pretoria. Lead Facilitator of the project.

**Date of Interview:** March 28, 2012

**1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The project was part of various provincial studies sponsored by Cofisa (Collaboration between Finland and South Africa). So it was a joint venture between the SA Government (Dept. Science & Technology) and the Finnish Ministry of Foreign Affairs. The collaboration is about "amplification of innovation, geared both at economic growth and poverty reduction." The Finns are very systemically oriented and the idea was to see how much more can be done in South Africa by stimulating systems of innovation. Also they specifically did not want to look at the national level; they wanted to act at the regional or even local (non-urban) level, in stimulating innovation.

**2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

To understand this, one must understand both levels of the project. The first part considered what impact innovation could have on the Eastern Cape 25-30 years ahead. That was the first stage, the "Innovation level" which took about three months in late 2008, early 2009. Then there was a second round that focused on biotechnology. We used the scenarios from round one, but focused them on biotechnology in round two. The aim was to take the high-level scenarios and see how they could be used to see a range of futures on a specific issue. Scenarios came

---

<sup>44</sup> The report is available at <http://www.innovationeasterncape.co.za/library/reports.php>; Viewed April 10, 2012

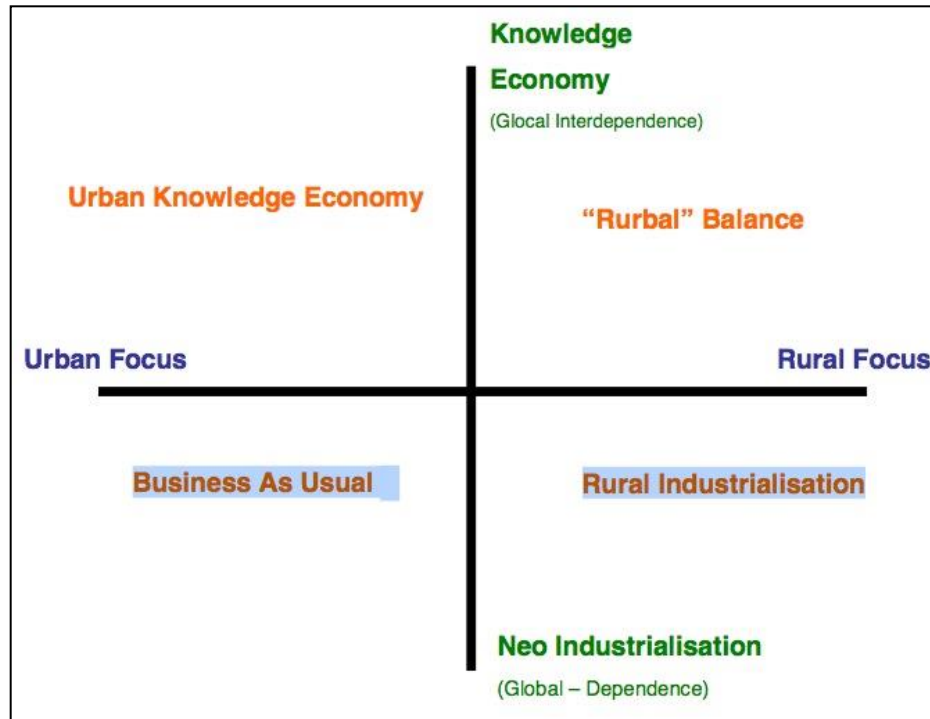
about because we were working with Turku University that has a large foresight department, and they were using Jerry Glenn's Futures Wheel in simple form. The various outputs from the futures wheel led to scenarios in capturing the full complement of outcomes. In general I see scenarios as very useful where there are entrenched ways of thinking, which was very much part of the problem here. Where we have traditional or dogmatic thinking, scenarios help groups look for new pathways. It also has a direct impact on individuals whose perspective may be completely changed (widened) by the process. So this is why the scenario approach was chosen.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

We used small groups workshops. In total there were 30-40 people and these were from the private sector, public sector, donor community, farming and agriculture, academics, and representatives of SMEs. We created groups of six or seven that made sure these various communities were split up. Each phase of the project had two workshops of two days each, with electronic communications among participants in-between.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are "Knowledge Economy (Glocal-interdependence) vs. Neo-industrialisation (Global-Dependence)" x "Urban Focus vs. Rural focus". To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**





**Figure 4.5** Source: Non-Zero-Sum Development. (2009) *Three Biotechnology-Related Scenarios for the Eastern Cape*. p.1

The axes emerged from the results of their futures wheel exercise as reflected back to them in the workshop. Everyone was enthusiastic about these axes. There were a few strong "influencers" in the room: people in economic development, government policy; CEO's of SMEs. In general they would have hoped to have at least some influence as to outcomes along these vectors of uncertainties, although how much is hard to say exactly.

**5. With reference to the matrix, it appears that one of the scenarios ("Rurbal Balance") describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

The bottom left-hand corner, for which we didn't write full scenarios is the "business as usual" quadrant, which most people would agree is bad—we can't carry on the way we are. But you will see bits of this in the other scenarios. The one that is least like this is top-right (*Rurbal Balance*). Most people would say top-right is where we want to be! But what the scenarios were used for was to say, "Do you

believe in this future?' For all 3 (new) scenarios: "Can you see these problems, can you see these opportunities?... Now what does that open the door for, for you (or whatever consortium you can pull together) to do over the next 20 years to create something in the biotech sphere in the Eastern Cape that at the moment isn't happening?" The aim was this would lead to more specific targets.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

We produced the scenarios (both at the innovation level and biotechnology level) in final version as an end in themselves. Anyone can take them up. The higher-level innovation scenarios were definitely hoping to influence provincial and local government, and their development strategy. We know there have been inputs into many departmental planning processes, for example to produce a self-contained rural community (a consortium of Nelson Mandela University, Rhodes, 5 SMMEs, and East London municipal authorities. This is on-going. As used so far, the biotechnology scenarios have been a stepping-stone to producing technology roadmaps to be used by the Department of Science and Technology.

## **Interview 6. United Parcel Service: Migration to Open Source Systems**

**Source Document:** Company confidential. Selections made available to the researcher.<sup>45</sup>

**Date and Place of Project:** 2004; UPS IT Center, New Jersey, USA

**Interviewee:** Edward M. Rogers, Global Strategy Manager, UPS Corporate Strategy Group, UPS, Atlanta, GA, USA (Client liaison for the project.)

**Date of Interview:** April 30, 2012

### **1. Who was the commissioning organisation (or sponsor) of the project, and what is that organisation's core mission or key purpose?**

It was an in-company project done by UPS, a global logistics and package delivery company, headquartered in Georgia, USA. In this case, the part of the company responsible for this work, were head office in Sandy Springs, Georgia, in combination with the UPS Advance Technology Group, in Information Technology Systems (ITS) at UPS, based in New Jersey. ITS manages information technology and all information systems for UPS globally.

### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

We use scenarios selectively in planning, turning to it when there is a lot of uncertainty and not much data to go on. In this case the issue, in 2004, was the impact of Linux or similar open-source operating systems on UPS. We were not using open operating systems very much, and neither were our customers. But we got signals that customers may go in this direction—toward Linux architecture—particularly because of lower cost. There was a growing awareness of Linux operating systems being adopted by customers, along with a suspicion that Linux was less expensive than proprietary systems. So we turned to scenarios to think through: if our customers are suddenly asking us to interface, connect to open systems, how will this affect how we move and protect data, and would we be able to move as quick as our customers would want us to? This was a subject area with a

---

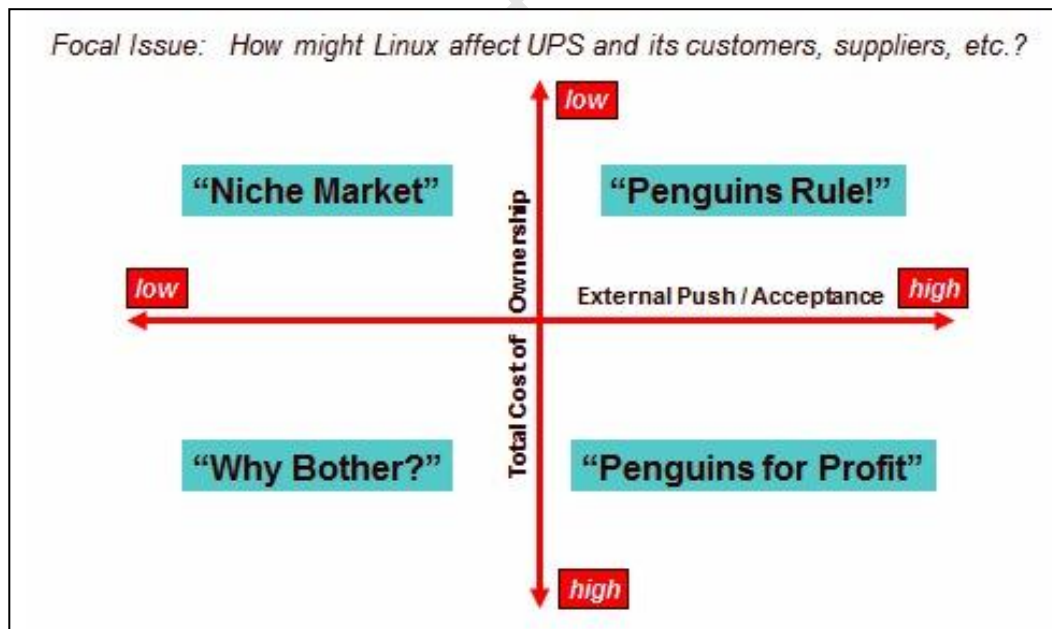
<sup>45</sup> Due to UPS company confidentiality requirements, only select briefing slides—including the 2x2 matrix on the following page—were provided by the interviewee to the researcher, in advance of the interview on April 30, 2012

great degree of uncertainty. We needed a cross-functional team to evaluate implications and options, rather than a pure technology assessment.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

There were two workshops. First, a 2-day workshop in at the IT offices in New Jersey. This was followed by a second a 2-day workshop by videoconference. There were 22 people in the exercise, all UPS insiders. This included strategy people based in Atlanta, an Advanced Technology Group team in NJ, and representatives from Louisville (where the UPS airline is based).

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Total Cost of Ownership” (high vs. low) and “External Push / Acceptance” (high vs. low). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.6** Source: Item provided to the researcher by Edward M. Rogers, Global Strategy Manager, UPS Corporate Strategy Group, UPS

We followed standard scenario development routines to identify a full list of important factors and environmental forces, which we eventually reduced to 12 critical uncertainties, and ultimately to these two. The Cost of Ownership refers to the cost of running Linux, that is installing and converting to Linux. Would that be high or low? The External Push / Acceptance refers to customer demand. Would most of them be requiring us to move to this new standard vs. very few, and most don't really care? In terms of our influence—this is why we were doing the scenario exercise—because we felt like we were more a victim of this rather than a perpetrator! I wouldn't say we thought we could push things very much towards one quadrant or another. On the other hand we can't say we would have no effect because of our (UPS) size and magnitude. Just by virtue of us being so large – we can negotiate price breaks when we are buying equipment or professional services. But our perception was we were at the mercy of these global forces.

**5. With reference to the matrix, it appears that none of the scenarios describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

Just because you don't like a scenario doesn't mean it won't occur! There was definitely one that would have caused us the most problems: *Penguins for Profit* (high customer demand and expensive to convert). So we spent a lot of time thinking through the implications of that world. Where demand would be low, even if high-cost, there were various unique solutions. Our main issue is that our vast legacy systems and legacy investment of billions of dollars would have to continue to operate in the midst of the conversion. With reference to legacy systems, markets, and investments, the purpose was to look at potentially troublesome outcomes and figure out what we could in advance of that.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

A set of options for each scenario was developed. Some became action items for the Advance Technology Group to pursue. (This answer was circumscribed by UPS company confidentiality requirements).

## **Interview 7. Conservation International: Sustainable Futures for Milne Bay.**

### **Source Documents:**

1. Bohensky, E., Butler, J., & Mitchell, D. (2011) Scenarios for Knowledge Integration: Exploring Ecotourism: Futures in Milne Bay, Papua New Guinea. *Journal of Marine Biology*, Volume 2011, 1-11. Article ID 504651,. doi:10.1155/2011/504651
2. Butler, J., Bohensky, E., Skewes, T., & Mitchell, D. (2008) *Sustainable Futures for Milne Bay Workshop Report*. CSIRO, Australia

**Date and Place of Project:** 2008; Milne Bay, Papua New Guinea

**Interviewee:** Dr. Erin Bohensky, research scientist, Ecosystem Sciences Social & Economic Science Programme, CSIRO, Australia. Co-chief Facilitator of the project.

**Date of Interview:** March 21, 2012

### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

It was a jointly-funded project between Conservation International (CI) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the public research institution of the Australian government. Conservation International is a large international US not-for-profit organisation, with many global offices around the world, including in Milne Bay, Papua New Guinea. CI focuses on conservation and biodiversity issues and the connection between human well-being and natural ecosystems: the connection between livelihood issues and ecologically sustainable development. The project was initiated by CI Australia, but we worked with the CI office in Milne Bay.

### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

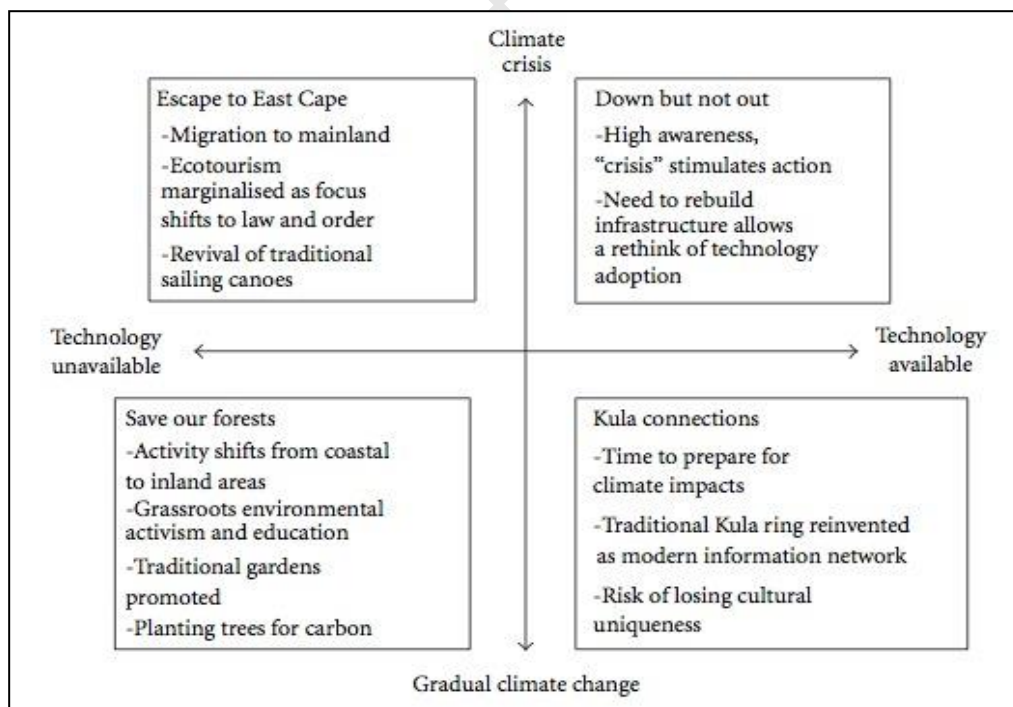
CI and CSIRO were looking at different tools for exploring approaches for integrated conservation and sustainable development options for Milne Bay. There had already been workshops looking at ecotourism options for the region. Ecotourism had been identified as a possible development industry opportunity in the region partly because Milne Bay is one region that has not been completely transformed to other land uses (e.g. palm oil). So the original aim was to think about ecotourism there—how well it was doing, what can be done better, how to avoid traps seen in other

regions, how it could foster biological and cultural diversity and also promote sustainable local livelihood. Scenarios were brought into the project because the sponsors were interested in looking at alternative future options—and scenarios were perceived as a systematic way of exploring those.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

The participants were regional stakeholders in Milne Bay, local representatives of Conservation International (CI); the Milne Bay Tourism Board, small environmental and conservations NGOs; and local hospitality and tourism operators.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are Climate change (gradual vs. crisis) and Technology (available vs. unavailable). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.7** Source: Bohensky, E., Butler, J., & Mitchell, D. (2011). Scenarios for Knowledge Integration: Exploring Ecotourism: Futures in Milne Bay, Papua New Guinea. *Journal of Marine Biology*, Volume 2011, 1-11. doi:10.1155/2011/504651. p.7.

The climate change axis: I think everyone agreed change is happening. When and where it happens is unknown, and particularly will it be a crisis event or a gradual process. That is the nature of the axis and it was seen as beyond the control of the participants. Technology was essentially about low-cost technology, particularly telecommunications, and the question there was essentially, would there be high-speed Internet and related technologies that could support infrastructure development, or not (the status quo). If this technology were to be widely available, the various stakeholders in Milne Bay would be able to respond to change in new ways. As to control of this variable, for the participants in Milne Bay technology is a “national” issue—essentially beyond their control, apart from a bit of lobbying of local policymakers.

**5. With reference to the matrix, it appears that one of the scenarios, “Kula Connections”, describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

There was a preferred outcome. This was *Kula Connections* where there is no climate crisis and technology availability would allow locals to proactively develop the ecotourism industry (where they could do the most things). But this was not the point of the scenarios. Rather, we want people to think “what if each scenario happens”? They were generally positive to all, and look at opportunities (responses) to all. In the world that appeared “bad” *Escape to East Cape* they looked at opportunities for a revival of traditional practices, which could be a marketing/selling point for tourism. As a whole, if this project is anything to go on, Papua New Guineans are ready to acknowledge the possibility of various changes, and have an “adaptive” attitude to life.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

In the workshop, and in a follow-up session the next day with core participants, the delegates identified things they could do next—action items to go forward with. This was a mixed bag of follow-up tasks from the workshop, but also taking things up to the authorities, who would have power over technology distribution. Some of the action items had to do with what was discussed pre-scenarios, for example how to (eco) regulate the dive industry. Also conducting a visitor survey to get better



understanding of tourism needs and demands. Scenarios then fed into this, highlighting for the participants the importance of doing this. The scenarios were there for individual use and also articulated a collective go-forward and need to work together. Participants came to recognise the need for partnerships among the different operators in the region; and different organisations operating at different scales: regional, national, and international (including CSIRO and CI), but it is not clear that anything is directly happening since the project ended.

University of Cape Town

**Interview 8. Nautilus Institute: Peaceful Resolution of the North Korean Nuclear Crisis.**

**Source Document:** Nautilus Institute. (2003). *A Korean Krakatoa? Scenarios for the Peaceful Resolution of the North Korean Nuclear Crisis*.<sup>46</sup>

**Date and Place of Project:** 2003, San Francisco, USA.

**Interviewee:** Doug Randall, Managing Partner, Monitor 360, San Francisco, USA. Lead Facilitator of the project.

**Date of Interview:** March 26, 2012.

**1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The project was done by for and on behalf of the Nautilus Institute. The Nautilus Institute for Security and Sustainability is a public policy think-tank that conducts research to address macro-problems, particularly military and environmental security, in the Asia Pacific region. It is a think tank. In this case they were interested in getting a group of people together to discuss and understand what the range of futures and options were around North Korea.

**2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

We were using scenarios as a way to get a dialogue going. It was very much about getting multiple stakeholders from various organisations together to talk about this issues, and scenarios were seen as a way to do this effectively.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

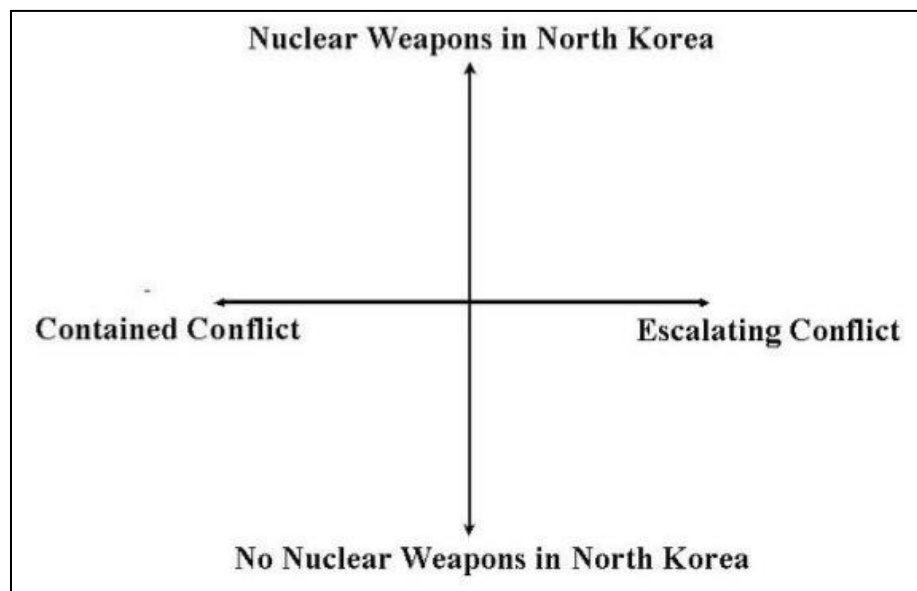
The group included thought leaders, researchers, and academics. There was a total of 16. It was not directly a group of government policy makers or nuclear scientist. It was mostly US-based think-tank people. Although the reference was to Korea, the

---

<sup>46</sup> The report is available at:  
<http://oldsite.nautilus.org/DPRKBriefingBook/scenarios/DPRKscenarios2003.pdf>. Viewed June, 2012.

project was done in the United States, which influenced who was there, that is, American and allied policy people.<sup>47</sup>

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are: form of conflict (contained vs. escalating) and nuclear weapons in North Korea (yes vs. no). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.8** Source: Nautilus Institute. (2003) A Korean Krakatoa? Scenarios for the Peaceful Resolution of the North Korean Nuclear Crisis. p.4.

The people who made the scenarios were not in control of the outcomes along these axes: they were completely exogenous factors. It's hard to imagine them influencing the axes in any way.

**5. With reference to the matrix, it appears that one scenario (Contained Conflict and No Nuclear Weapons) describes a distinctly better outcome for**

<sup>47</sup> The project document (Nautilus Institute 2003, 3) shows participants came from organisations such as: Korea Institute for National Unification; Preventive Defense Project Stanford University; The Korea Society; The Heritage Foundation; The Presidential Committee on Northeast Asian Business Hub; and the UC Institute for East Asian Studies.

**the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

All would agree that this outcome was better than the others. The aim was to understand the options more clearly, to have all perspectives, but also to make sure there was an option that was positive—to see whether you could motivate people to focus on that. The context is important: the whole “intel” (military-political intelligence) community, at least here in the US, is centred on what they perceive as “objective analysis”. This study, revealing that this scenario set had a positive outcome (which may have been a forced outcome) would typically be used in situations where you’re trying to rally people towards some alternative future.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

It was used for a set of dialogues with a set of stakeholders—carried on serving to promote dialogue among stakeholders in the region. But it is true to say that there was not as much as the commissioning organisations would have wanted them to. A good-use outcome would have been further clarity and understanding of the situation; people understanding how their actions could have an impact on things; on the relationship with North Korea. But this was not really followed up.

## **Interview 9. Office of the Presidency: South Africa Scenarios 2014**

**Source Document:** Policy Co-ordination and Advisory Services, Office of the Presidency, South Africa. (2003). *Memories of the Future: South Africa Scenarios 2014*.<sup>48</sup>

**Date and Place of Project:** 2002-2003, South Africa

**Interviewee:** Dr. Harry Dugmore, Co-ordinator and Lead Facilitator of the project

**Date of Primary Interview:** March 19, 2012

### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The scenarios were commissioned and co-ordinated by the South African Government at the time—the Office of the President at the time (Thabo Mbeki). Specifically the project was managed by the Policy Co-ordination and Advisory Service (PCAS), the President's in-house high-level concept councillors under the then Director-General of PCAS, Joel Netshitenzhe,<sup>49</sup> who interfaced between the Cabinet and the project working group.<sup>50</sup> The project was funded in part by the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) which also provided project support through the Economic and Development Policy Advisory Programme (EDAP). These were essentially scenarios done in-government, for government. They were done in 2001-2003, to be ready for 2004 (the 10 year anniversary of democracy in South Africa) and looked 10 years ahead.

---

<sup>48</sup> The report was available at:

<http://www.thepresidency.gov.za/docs/pcsa/general/scenarios/memories.pdf>. Viewed July 1, 2012. (However this electronic copy has latterly proved to be corrupt. The full report is available from Dr. Harry Dugmore: [h.dugmore@ru.ac.za](mailto:h.dugmore@ru.ac.za) or from the researcher.)

<sup>49</sup> The core mandate of PCAS is defined as "to facilitate integrated strategic policy formulation and implementation across government". <http://www.thepresidency.gov.za/pebble.asp?relid=183>. Viewed July 11, 2012

<sup>50</sup> Further, from the report (Policy Co-ordination and Advisory Services, Office of the Presidency, South Africa, 2003, 33): "The project was overseen by a steering group of Ministers, including the Ministers of Social Development, Education, Finance, Foreign Affairs, Health, Justice, Provincial and Local Government, Public Enterprises, Public Service and Administration, Trade and Industry and the Minister in the Presidency. The project worked with a core team of Directors General and outside experts from the private sector, labour and community groups. It also benefited from interviews with a wide range of leaders from Government, the private sector, civil society and research institutions from Universities of Bochum, Bonn, Duisberg, London and Sussex."

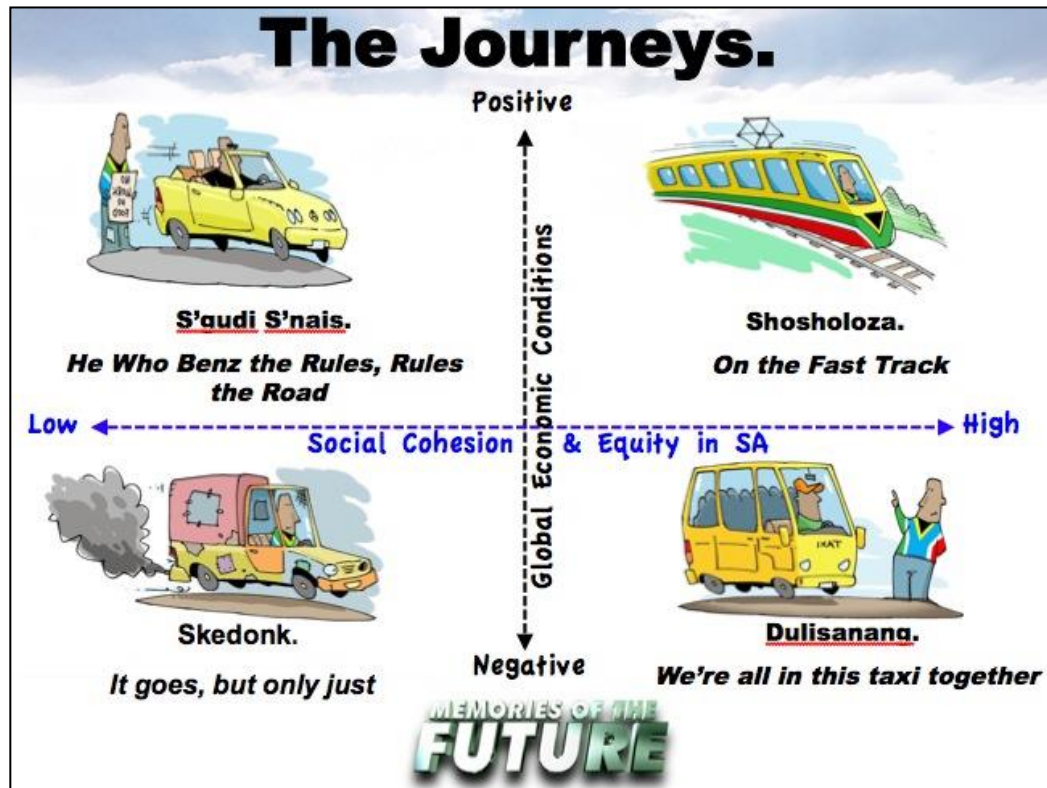
## **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

The aim initially was to figure out the big things coming over the horizon—what was coming at us globally and on the continent. We spoke a lot about “horizon scanning”. The fundamental aim was to allow government to make better policy and better law, and do the things that government is supposed to do, including in this a cognisance of major international and local trends in a whole variety of areas. But all this morphed very quickly into an internal visioning exercise, along the lines of “what kind of society do we want to be?” The unstated aim of the project was, since 1994 there had not been a process in government of common vision making. The project was directly commissioned in line with 10 years of ANC rule, and became the ANC leadership’s introspection at the 10-year anniversary point. So 2014 became a vision-making exercise—“where are we heading to? Where do we want to go to?” *Shosholozo* is a scenario where the State contracts and frees up the private sector to effect a six percent year-on-year economic growth. This was definitely a preferred future within the Mbeki administration. Behind this, there were fierce debates about the role of government, what it can and can’t do; what it should do; how big the State should be. And the scenarios to some extent end up reflecting these debates. But the fact that this scenario process became a national visioning exercise was more by accident (and government need) than by scenario design.

## **3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

We started with pre-interviews, reaching about 65 very senior people in government and the private sector, and in education and sport personalities, asking them to list the biggest challenges for SA in next 10 years, and what should we do about them? Their responses found their way into expression of key driving forces for consideration by the scenario team. This team, the working group, consisted of about a dozen outsiders and eight from the Office of the Presidency team. Without exception they were all they were very senior people: various Director-Generals e.g. from Science & Technology, and from Treasury, as well as ex-Ambassadors and very-well known people like Jill Marcus and Sheryl Carolus. The process consisted of three 2-day workshops where these 20 gathered over an 18-month period. Joel Netshitenzhe would take the work-in-progress into Cabinet at their *lekgotla*, about every six months and we would get detailed comments from Ministers.

4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Global Economic Conditions” (Positive vs. Negative), and “Social Cohesion and Equity in South Africa” (Low vs. High). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?



**Figure 4.9** Source: Policy Co-ordination and Advisory Services, Office of the Presidency, South Africa. (2003). *Memories of the Future: South Africa Scenarios 2014*. Presentation Slides p.13.<sup>51</sup>

This issue was divisive in the process. We had two types of participant in the room, which perhaps represents two types of people in government: one group that thinks that the government can do a great deal and which therefore has a strong sense of State capacity. The other group say we don't have such a high capacity civil service or influence. These issues are highly political, having to do with an ideological difference over whether big government or small government is preferable. In our discussions we were trying to cluster and focus on: "what is government good at?"

<sup>51</sup> Although this matrix was not provided in the report, it is described in the report, with matrix implications determined by the researcher in agreement with the interviewee.

Where can we get most bang-for-our-buck? This was a recognition that government was not all-powerful, but could have a great influence in certain areas. For example, the participants did identify infrastructure, ports and railways, etc., as an avenue of influence. In general, while we were considering all the macro-drivers, it was clear that some of them were shapers of our future that we didn't control, and others were shapers that we also had a lot of handle over. One of these was quality of governance: "how good was government going to be; how non-corrupt, open, transparent, effective, and impactful?" It turned out to be a big variable—unsurprisingly—in the scenarios government was doing for itself, and this variable was clearly to some extent endogenous.

**5. With reference to the matrix, it appears that one of the scenarios, "*Shosholoz*", describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

As mentioned above, the preferred vision was something of an accident. There was in fact concern to move away from "good vs. bad" scenarios, not least because this form was associated with Clem Sunter's (Anglo American's) "High Road—Low Road" scenarios of the 1980s. But if you ask anyone who remembers the 2014 work, they remember the *Shosholoz* vision, particularly the 6 percent growth rate. We saw in the workshops the lights go on: "We could really get rid of some of these structural constraints!" They really saw a vision of how we could grow the economy at six percent. This meme swept through government. "We can grow like other fast-growing economies—more is possible than we thought. Get the shackles off!" And far rather this than *Skedonk*, a bleak Zimbabwe-like future where the wheels fall off. After the other three scenarios, *Shosholoz* was a relief: optimistic, motivational, aspirational, plausible. At some of the presentations it became like a rally. People got really enthusiastic about the vision. "High-growth path, yea we can do it!"

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

Between Netshitenzhe and myself we made about 20 major presentations of the work in central government, for example to the Ministry of Health, or provincial and municipal government, for example to the Johannesburg City Council. To add dispersion we created a PowerPoint "movie" that worked without need for a presenter and this was presented at least another 20 times and maybe more. There



were also 5,000 booklets printed and distributed. This was the extent of the direct follow-up, but the process was also foundational for the 2025 Office of the Presidency Scenario set (done in 2006-2007) where in fact the first thing we did was talk through the mistakes of the 2014 set, and our biggest critique was the limitations of distribution and implementation, which to some extent we rectified in the subsequent project. Overall the answer is I don't think scenarios were well used at all. The 2014 set did give people a common language, for example "constraints to growth" and "Skedonk" and terms like that that you still hear. Overall the process was incredibly useful to think-outside-the box, but whether it made any difference on the ground... I haven't ever heard even an anecdotal piece of evidence: they were going to do this, then they considered the scenarios and decided to do that.

University of Cape Town

## **Interview 10. Bord Bia: The Future of the Irish Food and Drink Market**

**Source Document:** Henley Centre Headlight Vision. (2007). *Anticipating Tomorrow: Shaping the Future of the Irish Food and Drink Market Towards 2020*.<sup>52</sup>

**Date and Place of Project:** 2007, Dublin, Republic of Ireland

**Interviewee:** Rachel Lloyd, (then) Associate Director, Henley Centre Headlight Vision. Lead Facilitator of the Project.

**Date of Interview:** April 27, 2012

### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The report was commissioned by Bord Bia, the Irish Food Board. The role of Bord Bia is to promote Irish food and drink, in Ireland, the UK, Europe and worldwide.<sup>53</sup> Bord Bia has dues-paying subscriber members, which include both large and small food and agriculture companies across Ireland. In commissioning this project Bord Bia wanted to show to their member-stakeholders that they are at the forefront of understanding the future, and thinking about what it holds for Irish food companies, and what the opportunities might be going forward. It was a way of giving dues-paying members the kind of perspective that many couldn't afford on their own.

### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

The Henley Centre (now Futures Company) was already doing consumer trends work for Bord Bia, which had gone down very well with member companies. Scenarios development was the next step. Bord Bia's motivation also had to do with their perception that the food industry is a changing industry, but one that thinks very short-term. It felt there was therefore a role for scenarios to 2020, and the Bord could step in and do the long-term thinking small companies couldn't do. The process itself, including the multi-party meetings would be valuable (in addition to) the scenarios output itself.

---

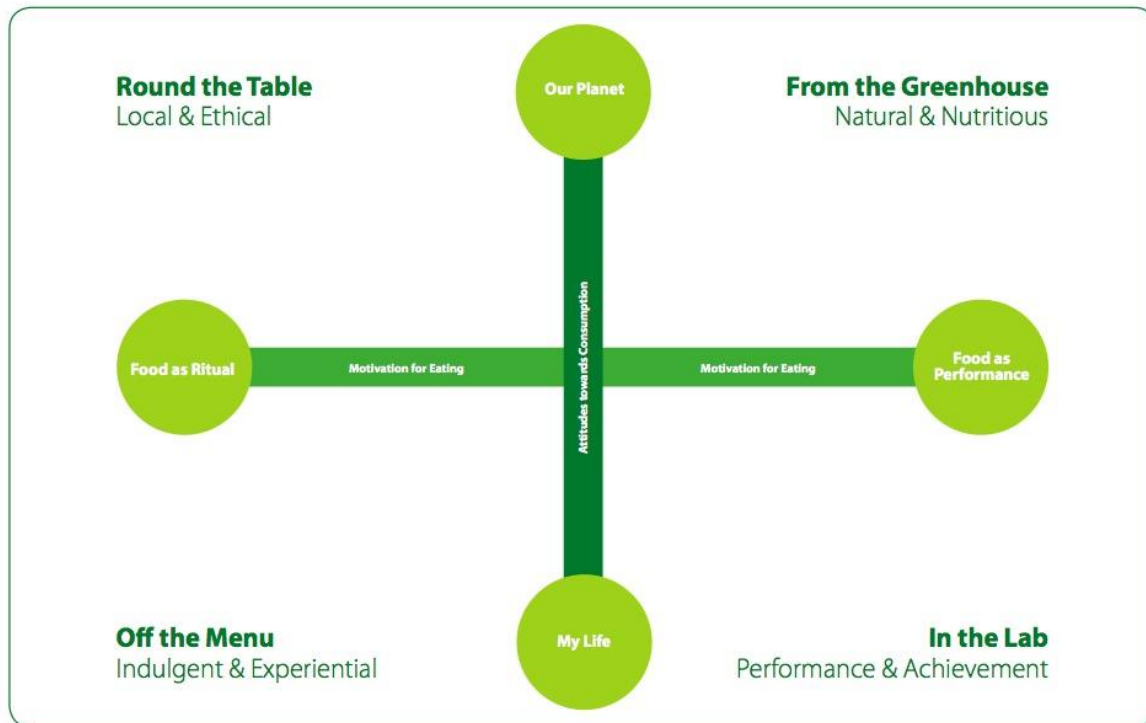
<sup>52</sup> The report is available at <http://www.bordbia.ie/aboutus/publications/Pages/AnticipatingTomorrow.aspx>. Viewed June 4, 2012

<sup>53</sup> On its Web site Bord Bia defines its mission thus: "To drive the success of a world-class Irish food, drink and horticulture industry by providing strategic market development, promotion and information services." <http://www.bordbia.ie/aboutus/pages/servicecharter.aspx>. Viewed June 4, 2012.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

We made sure everyone understood it was a co-creation project. All the member-participants would provide input. All the workshops were in Dublin. There were five in all: a drivers workshop; a scenarios development; two strategy workshops; and an implications session. There were 12-20 participants each time, and these were representatives of the Bord Bia member companies. Where it was a small company we usually had the founder or MD; if it was a larger company we would have a representative from strategy or marketing. In addition there were various externals: academics, health professionals, a nutritionist, a journalist, etc. Among other things (providing an fresh perspective from the periphery or external to the industry), their presence diluted the competitiveness between the companies.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Attitudes towards Consumption” (Our Planet vs. My Life) and “Motivation for Eating” (Food as Ritual vs. Food as Performance). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.10** Source: Henley Centre Headlight Vision. (2007). *Anticipating Tomorrow: Shaping the Future of the Irish Food and Drink Market Towards 2020*. p.22.

This was a little different between the smaller companies—which felt completely at the mercy of market forces, the recession, etc., and larger companies or organisations, for example Tesco Ireland or Bord Bia itself, which felt it could have quite an impact. But it depended on the issue: none felt they could stop a recession. Some of the participants liked to be presented with: “here’s a world” how might we react and respond? Others, equally validly in our opinion, were asking: “how might we stop that world coming about; what would we do in that world to change it?” On this there was a fair amount of discussion around how they could move from one world to another, in other words a discussion of constraints. But on reacting to what is given: by the 4th or 5th workshop we had pulled out common issues across all four quadrants, including red flags / challenges that were true across all four scenarios.

**5. With reference to the matrix, it appears that none of the scenarios describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

We very deliberately designed the scenarios so there were pros and cons in each world, and therefore opportunities in each. There is specifically no “better” or “worse” scenario. We were very conscious not to make “Great World vs. Armageddon” and some in-between outcomes. This related to the intent of Bord Bia in that they were specifically and consciously setting out to create “thought leadership” for the industry. This was something Bord Bia wanted the scenarios to show. So this meant getting stakeholders to come together as an industry and understand the opportunities and long-term strategic challenges they face in various outcomes (rather than articulate better or worse environments). This is what we (The Henley Centre) said scenarios would offer Bord Bia, and this is what they wanted from the process.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

There was a “glossy launch” of the scenarios at the Bord Bia Annual Food & Drink Awards, which introduced the scenarios to wider membership, even those who had not taken an active part in the process. There was also direct Bord Bia funding for follow-up, particularly for small member companies, to think about the medium-term or long-term strategic implications of the scenarios for their own company. With financial backing from Bord Bia the Henley Centre took the scenarios to member companies — for example a small porridge manufacturer and said: “what happens to you as a company in this world?” or “What are the strategic opportunities for you in this world?”

## **Interview 11. Association of Research Libraries (USA): A User's Guide for Research Libraries**

**Source Document:** Association of Research Libraries. (2010). *The ARL 2030 Scenarios: A User's Guide for Research Libraries*. Washington, D.C.<sup>54</sup>

**Date and Place of Project:** January-October 2010; Washington, D.C., USA

**Interviewee:** Karla Streib, (then) Assistant Director for Transforming Research Libraries, ARL. Client Representative for the project.

**Date of Interview:** March 15, 2012

### **1. Who was the commissioning organisation (or sponsor) of the project, and what is that organisation's core mission or key purpose?**

The Association of Research Libraries (ARL) is a not-for-profit 501c3; membership organisation whose members are research libraries (not individual professional librarians). It has 126 members in the US and Canada, ranging from large government libraries, to major research university libraries, and includes other research libraries, for example the NY public library and the Smithsonian. The organisation focuses in three strategic areas: (1) federal policy as affects libraries, for example copyright issues; (2) scholarly communication; and (3) helping member libraries make the transitions necessary to becoming 21st century research venues, given the significant changes going on in research, teaching, learning in the digital age

### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

The ARL is a strategic planning type of organisation and part of its mandate is helping member its organisations think better about the future and to prepare for it. My job was to think about how do we go about that? I looked at how other organisations had done this. Our members are familiar with Strategic Planning, so we needed to go beyond that. We had previously done a "horizon scan" and found there was a real hunger for tools like this among members, to be used for their local planning. Scenarios were the next step, both to convey a shared recognition of the

---

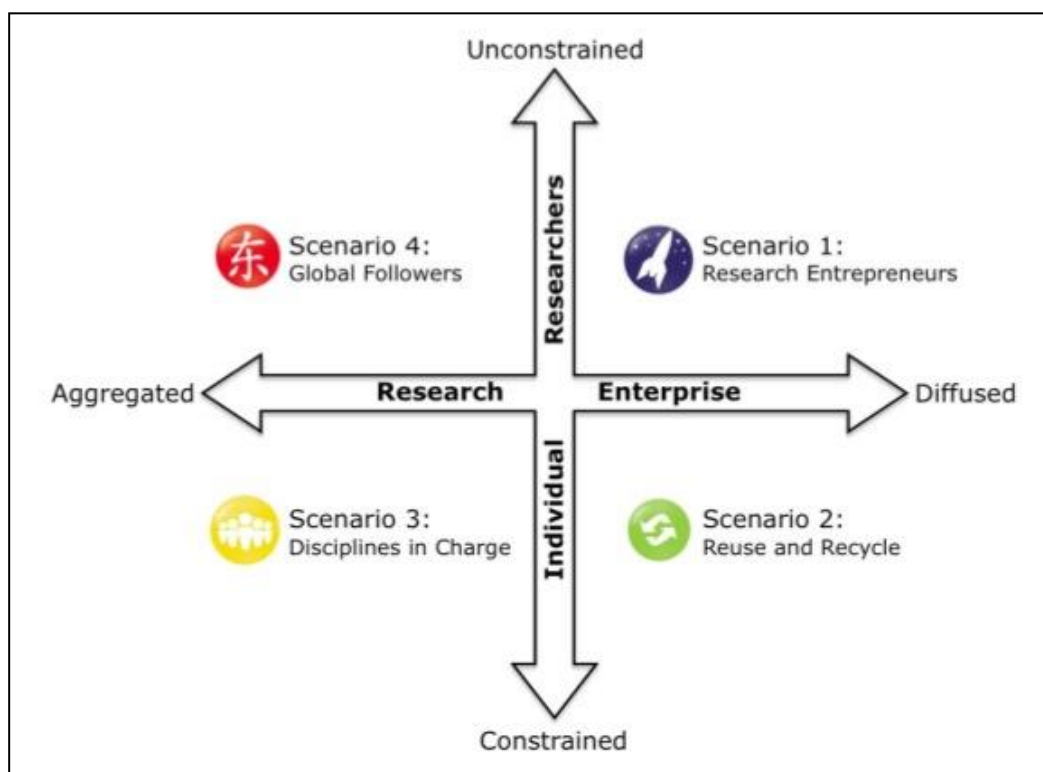
<sup>54</sup> The report is available at [www.arl.org/bm~doc/arl-2030-scenarios-users-guide.pdf](http://www.arl.org/bm~doc/arl-2030-scenarios-users-guide.pdf). Viewed March 30, 2012

scale of change we need to undertake, and helping us push ourselves to think about change at a different scale. Scenarios are well tuned to that scale and larger timeline; pushing people to think about a set of alternative futures rather than a preferred future or incremental timeline going forward.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

The development process was implemented by ARL staff working with (facilitator) Susan Stickley of Stratus, Incorporated. There was fairly wide public input: provided through focus groups (conducted in-person and online) as well as a public online survey, and one-on-one interviews. The strategic focus and critical uncertainties highlighted in the scenarios were identified through a consultative process with the ARL membership during the spring of 2010, followed by a 2-day invitation workshop (augmented by four “project provocateurs” from outside the library community tasked with stretching the group's thinking) where about 50 representative leaders from ARL member institutions got to the bones of the four scenarios. They also developed strategic implications and related strategic questions for research libraries’ consideration while the scenarios were being written up at ARL; the group therefore played a role in helping tune the scenario work resource to serve the follow-on needs of research libraries.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are: “Nature of the Research Enterprise” (aggregated vs. diffused) and “Conditions Surrounding Individual Researchers” (constrained vs. unconstrained). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.11** Source: Association of Research Libraries. (2010). *The ARL 2030 Scenarios: A User's Guide for Research Libraries*. p.13.

First, we spent a lot of time on deciding how do we articulate what this vector is? We didn't want it to be just a distribution of resources (up/down). Then the group looked at three or four possibilities for the matrix. Our goal was to get four scenarios that were different to each other, but focused and relevant to our community, so we could think about different ways things could turn out. "We were not looking for, in the end, for the group to pick one of the futures. We were trying to do everything we could to keep that from happening at any point in the use of the scenarios!"

**5. With reference to the matrix, it appears that none of the scenarios describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

It was definitely not an effort all towards the ARL creating a vision of the future to impose it on the community. We definitely didn't want an "official future": "Here's a scenario, let's all do that!" This would immediately have created opposition. The aim was to provide a neutral framework for the conversation (about the future) among the research libraries. Neutrality, this "flexibility" in the scenarios, was appreciated



by the members: each member organisation was able to use the outcomes in its own way; draw their own conclusions. We wanted scenarios that challenged our informal, unquestioned assumptions. we wanted to get beyond our official future – libraries have been embracing of change since the 1990s and they are familiar with a lot of the issues. So our question was, can we change the nature of the conversation; move beyond what we know – what are the new things we should be thinking about? But we had no one vision of the future we wanted to put forward.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

The main goal was to create a stimulus tool for members to use in own organisation planning at the local level. This is different to the “normal” situation where organisations usually develop scenarios for their own use. We did have a meeting in the September (2010) pre-release: to get member organisations to talk to us about how they could use the work. This helped us develop our user guide, which was released along with the scenario report. The obvious intended use was for member libraries developing a new strategic plan, say 3-5 years out. But it was also intended to be a tool for libraries to work together on joint projects—allowing them to jointly ask: “what futures are we preparing; what are the opportunities to prepare for?” Also it was apparent that some libraries would find use in sharing the scenarios with external and/or campus leadership and planning.

## **Interview 12. United Nations (FAO): Agricultural Produce in the Nile Basin**

### **Source Documents:**

(1) Hilhorst, B., & Schütte, P. (2010) Food for Thought: Discovering Common Ground *Reflections* (Society for Organizational Learning) Journal on Knowledge, Learning, and Change, 10(2) 1-12.

(2) Food and Agriculture Organization of the United Nations. (2009). *Demand Scenarios for Agricultural Produce in the Nile Basin for 2030*.<sup>55</sup>

**Date and Place of Project:** 2006-2008, Entebbe, Uganda .

**Interviewee:** Dr Peter Schütte, Schütte & Company, Holland (Lead Facilitator of the project.)

**Date of Interview:** April 30, 2012

### **1. Who was the commissioning organisation or sponsor of the project, and what is that organisation's core mission or key purpose?**

The organising and commissioning institution was United Nation Food and Agriculture Organisation (FAO). In this case the commission came from the FOA office in Entebbe, Uganda. The project to that point had been mostly about data collection— measuring flows and so on—and developing “information products” for the Nile Basin community.

### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

The purpose of the project changed towards scenarios over time. In discussions with the project leader (who was “very much in data collection mode”) he saw scenarios would add new insights. Then they (FAO Entebbe) had wanted to look at demand for agricultural produce in the Nile Basin; but this changed in first round of interviews (with 10 stakeholder countries in the region) where we saw we had to broaden the problematic to other factors in order to understand this demand variable. Focusing on a single variable turned out not to be the right thing to do. We saw we needed to develop a broader view to come to the right insights. But, then, as

---

<sup>55</sup> The report is available at <http://www.fao.org/nr/water/faonile/F4TscenarioBooklet.pdf>. Viewed June 5, 2012.

we went broader, the purpose changed again: to “how can we create common ground for important people in these 10 countries in order to implement new insights and new options for co-operation?” The FAO head office in Rome started protesting that we had lost focus on producing agricultural demand outcomes, but somehow we prevailed in following the broader mission.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

We used an interactive workshop approach, over four workshops. There was a group of 25 people from the 10 countries that have a stake in the region (all except The People’s Republic of Congo), and this group stayed essentially the same, with minor variations, through the whole process. The participants were people in government positions, at levels to do with expertise in water and agriculture, which in itself represents the original mandate of the project as more closely tied to these matters. As the project grew in scope, we tried to broaden the base of participant to get important people who could influence decision-making (with limited success).

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Governance” (Accountable, Legitimate vs. Unfavourable, Stifling) and “International Trade” (Distorted, Uneven vs. Favourable, Fair). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.12** Source: Hilhorst, B., & Schütte, P. (2010) Food for Thought: Discovering Common Ground *Reflections* 10(2). p.5.

I would say there was very little sense of influence. We had tried to find variables that were “external”, that is, not controllable by people building the scenarios or those who would be using them in the future. These variables are external. They can’t be changed. If you consider the governance uncertainty, a lot of the countries involved are firmly established dictatorships! So I don’t think people in the room had any illusions about changing that. The people in the room were not directly in governance. They were more water and agriculture specialists. Based on the insights from the scenarios, a lot of things can be changed—in terms of the options taken by the stakeholder groups—and this is what the scenarios were about. But little could be expected in terms of renegotiating the external conditions. Everyone wanted to improve the trade or the governance situations, but there was very little expectation or hope of this. (Ironically, all this came prior to the “Arab Spring”.)

**5. With reference to the matrix, it appears that one of the scenarios, “Joint Effort”, describes a distinctly better outcome for the organisation, or for the sector, or for the world at large. (a) Was this the aim? (b) If so, what did this**

**imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

We did not aim for developing outcomes that were bad or good: we wanted plausible consistent stories that could be used as a reference for decision-making. As things turned out, using the most important uncertainties as identified in-workshop by the participants, some scenarios were clearly more desirable than others. Top right is better than bottom left—but this is not what we were aiming for. We did meet some of the expected outputs to FAO, in terms of their data requirements. But more than this: the group actually developed a whole list of new insights. By broadening the solution space, we were moving away from the zero sum game on water towards other alternatives where there was more common ground that could be used as the basis of cooperation. The other, non-water options, were for example in the trade area, or in development of agriculture, were easier to implement. We came up with non-water solutions, not allocation, not building dams, but about international trade and specialisation. If we had defined the problem as a water problem there would have been no way forward. But the scenarios allowed us to broaden the solution space. So it was not about driving up the *Joint Effort* world or avoiding the *Double Burden* world. It was always understood that some scenarios were more desirable than others. But the real insight was based on developing the understanding we need to look for co-operation in the future (in the face of what can happen).

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

We tried to take on-going use of the scenarios into account going in: we built in further use into the first phase. But we didn't manage it very well. Partly we were unlucky that things in Egypt changed dramatically—we were working with the Nile Water Centre in Cairo—and suddenly all those people were “lost” to the process. We were planning workshops in Cairo, inviting people from other countries. Phase 2 would have been workshops, bringing together the right (higher up) people from 10 countries, and offering the scenarios to this different audience, specifically those who were closer to power and influencing decisions. For the time being everything is on hold. Phase 2 has not happened so far. But it still could happen under the Nile Basin Initiative (The 10 Nile countries, the World Bank, and various donor organisations) which was set up to see if we could develop a shared vision for all these countries.

### **Interview 13. World Economic Forum: Future of the Global Financial System**

**Source Document:** World Economic Forum, (2010). *The Future of the Global Financial System: A Near-Term Outlook and Long-Term Scenarios*.<sup>56</sup>

**Date and Place of Project:** 2008-2009, Geneva, Switzerland.

**Interviewee:** Nicholas Davis, Associate Director and Deputy Head of Strategic Foresight, World Economic Forum. Lead Facilitator of the project.

**Date of Interview:** June 13, 2012.

#### **1. Who was the commissioning organisation (or sponsor) of the project, and what is that organisation's core mission or key purpose?**

The project was commissioned by the World Economic Forum (WEF). Background is, any time the WEF commissions a scenario project, it is a multi-stakeholder project supported by a steering board consisting of a number of organisations and industries that contribute the funding. Internally we had various teams: investors and financial services teams based in New York and a strategic foresight team, based in Lausanne. Externally, we worked with the Kuwait investment authority, the Singapore Investment Corporation, and similar organisations, and we had two “knowledge partners”, one being the management consultants Oliver Wyman, the other the law firm Clifford Chance. All of these key stakeholder groups gave legitimacy and credibility to the project, and provided human resources and in some cases financial resources to the project.

#### **2. What was the aim or purpose of this particular scenario project? Why was a scenario approach chosen?**

The project started prior to the financial crisis. In 2007-2008 the purpose was initially to understand the emerging dynamics in debt markets in particular, and the outlook for macroeconomic stability—because there were concerns about the future. Scenarios were chosen because no one (or not many) was talking about downside scenarios for the global economy at the time. There was no mainstream analysis of this. Scenarios provided a “safe space” to raise these issues in taking a long-term perspective. The project was officially kicked off in January 2008, and by

---

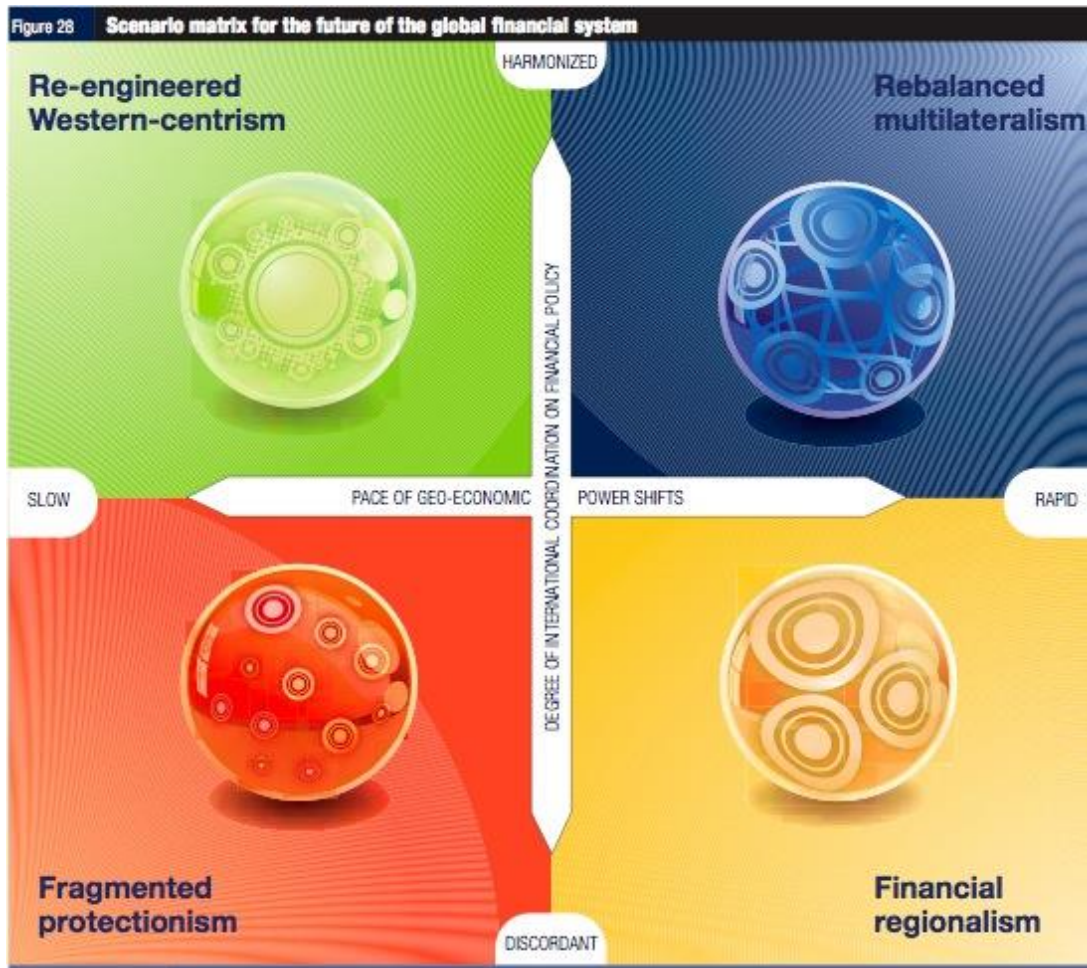
<sup>56</sup> The report is available at <https://members.weforum.org/pdf/scenarios/TheFutureoftheGlobalFinancialSystem.pdf> . Viewed July 5, 2012

mid-year things started to look shaky. And everything hit the fan by September 2008. So the purpose changed significantly during the project. It was no longer about whether there could or would be a downside-crisis, but about investigating the long-term consequences of financial crisis and potential resolutions. The report itself changed: the first half is about short-term dynamics, which was on everyone's minds. Scenarios were kept to address the long-term (post-crisis) perspective. So there was a new purpose in the short term (as addressed in Section 2 of the report), nevertheless maintaining focus on understanding the broader uncertainty and dynamics in financial markets and what that would mean for the evolution of the industry—the core purpose— stayed the same.

**3. Other than the facilitators, who participated while the scenarios were in either (a) the preparation or (b) the construction phase?**

There were about five workshops: a couple in London, two in New York, one in Davos. Overall there were about 100-150 participants over the life of the project, including representatives from the steering committee, the expert group, project advisors Oliver Wyman and Clifford Chance. This was augmented by various stakeholder groups: senior executives and even sometimes chief executives of big private sector investors; the big banks; regulators; and insurers. There were also representatives of the IMF and World Bank, and economists from the banking community and from academia. There was a mix of international background experience: USA, UK, and European and specifically Middle East, that is, Saudi and Emirates investors. It should be added that high-level policymakers, that is, government ministers, were not directly involved in the process. Also we did not have much representation from civil society.

**4. The scenarios built around two vectors of uncertainty, which provide a matrix structure for scenarios development. In this case, the axes are “Pace of Geo-Economic Power Shifts (Rapid vs. Slow) and Degree of International Coordination on Financial Policy (Harmonised vs. Discordant). To what extent were the real-world outcomes of these uncertainties perceived to be under the control or influence of the participants, or the commissioning organisation (either in themselves or via broader networks of influence and persuasion)?**



**Figure 4.13** Source: World Economic Forum. (2010). *The Future of the Global Financial System: A Near-Term Outlook and Long-Term Scenarios*. p.11.

The uncertainties were viewed as not at all under the influence of the participants. Regulators were hopeful of their ability to play a role and encourage a degree of international co-ordination—they were directly engaged in that. But they recognised that it was the questions of geopolitics and evolution of national politics that would determine the outcomes much more than the action of regulators. Generally the scenarios were perceived as incredibly “contextual” scenarios (referring to the greater context in which institutions operate, rather than their narrower “transactional” environment). It was “outside in” with a clear focus on external drivers. In other words, it was understood by participants that they were thinking beyond their sphere of influence.

**5. With reference to the matrix, it appears that none of the scenarios describes a distinctly better outcome for the organisation, or for the sector, or for the**



**world at large. (a) Was this the aim? (b) If so, what did this imply for the purpose or constraint conditions of the scenarios, as perceived at the time?**

There was no aim to create good or bad scenarios. Nor was there pressure in the work to explore more positive or more negative aspects. What we wanted to do was to challenge current mental models. In the first six months it was very hard to get people to talk about negative scenarios; we introduced negative world states to challenge mental models. After July-August 2008 we were in the opposite situation—struggling to get people to challenge new mental models as sentiment hit the floor. By early 2009 we were struggling to get people to see a way out. Here a positive scenario was challenging in the same way—challenging to what was the dominant perspective at the time. *Fragmented Protectionism* was negative in that it would be the hardest world for global organisations and international banks etc., to operate in. But it would be good for certain national champion banks focused on home markets, and also good for safe-haven countries.

Similarly *Financial Regionalism* was viewed as problematic for global organisations but good for regional players. *Re-engineered Western-Centralism* was seen as the “safe” option; business as usual under a supra-national regulator and a not-too-fast shift from international models such as Bretton Woods. *Rebalanced Multilateralism* was a path to better. But it is a story of great hardship for a long time—including a second financial crisis—which finally pushes legislators and firms into action. So people did not look at it and say “I want it.” It is still a challenging path. But this is more useful than a smooth, easy picture of recovery and growth, which anyway would have been rejected by the group as not realistic and plausible. This suggests use of the scenario as a learning tool and change tool. This was our purpose: scenarios as a learning and change tool, not a visioning tool. Specifically it was intended as a learning tool for CEOs and other senior leadership of stakeholder groups such as the investment industry, banks, insurers, and regulators: as represented by the steering committee.

**6. Once the scenarios were constructed, how were they put to use? How did the project further the purpose of the project participants, or the sponsor (or not)?**

There was a series of follow-up workshops, speeches, and other outreach with the scenarios, including “bilaterals” with governments where we made presentations on the scenarios and what they imply for both companies and governments, and how that relates to specific country-level dynamics. In the context we were in, we were always pushing people to think beyond the crisis: to how might this all evolve in the

long term; what does this imply for policymaking, human resources, strategy, internationalization, etc., right now? We were also addressing specific questions from banks, for example: “How risk averse should I be; where should I be placing my bets; what long-term structural changes should I be making?” Then there were questions from government: “What are the implications for regulation; how does this relate to economic growth; what does it mean for government interactions with the financial sector?”

Both groups were also asking about implications for public trust of the financial sector. There was however no application in terms of trying to shape policy or influencing events. Neither the Forum nor the Steering Board were saying: “We hold an agenda for, for example, deregulation. What we were saying was: “Here is an interesting series of perspectives on the future given some of the important contextual dynamics and drivers. This would be important for you to think about now, because it is the long-term dynamics that are going to matter over time. Don’t wake up and find yourself in a world you hadn’t anticipated. Lets talk about it now.” This was the primary purpose: pushing thinking from short-term to long-term, rather than having any specific agenda for long-term change.

\*\*\*

## **Chapter 5: Research Analysis**

### **5.1 Overview**

This chapter presents the analysis of the research presented in Chapters 4A (primary case studies) and 4B (subsidiary project studies, structured interviews). It extracts, gathers and organises the key findings that emerge from both research phases of the study. The next chapter (Chapter 6) takes the analysis forward into the argument of the dissertation and its proposed contribution to knowledge.

### **5.2. Purpose in Scenario Projects Studied**

The case studies and interviews presented here show that scenario work is done for many different purposes, and with the expectation of many and often multiple simultaneous benefits. Most interviewees report (in answer to Question 2 of the question set presented in Chapter 4B) that their particular scenario project originated to fulfil various, compound purposes rather than one simple purpose. These purposes include such items as provoking a sense of what might possibly occur; combining probabilities in ways not thought of previously; stimulating discussion about the challenges ahead; promoting decision robustness and innovative intent; facilitating and creating common ground among stakeholders; pushing thinking from short-term to long-term, etc.—the various items reflected in (and corroborating) the scenario perceived-benefit list, as presented in the theoretical survey (Chapter 2, Section 2.2). In addition, the scenario projects under study share many other common features and methodological choices: they stress

uncertainty about the direction and nature of future developments; examine change drivers and resulting trends; narrow the trend field by choosing the most important uncertainties as a base for scenario architecture; provide integrated stories of future outcomes; and consider the implications thereof. However, despite these multi-fold purposes, and apparent commonalities of method, the scenarios studies show group characteristics that suggest they are distinctly classifiable within larger, summative, purpose platforms. The observations that support this are elaborated in the following two sections.

### **5.2.1 Case Study Findings**

In Chapter 4A, the case studies Arup Foresight: Eco-Resorts of the Future and Metropolitan Life Foundation: Live the Future, Scenarios of HIV-Aids are presented. The projects are similar in that they are both situated in Africa, consider effectively the same 20-year future timeframe, and display at least some level of social and developmental preference. Both stress uncertainty about the direction and nature of future developments; examine change drivers and resulting trends, and provide integrated stories of future outcomes. Further, methodologically they follow a very similar scenario preparation (identifying important external drivers of change, see for example Chapter 4A, Figure 4.3), and use foundational axes of uncertainty in a 2x2 matrix form to provide the basis for four alternative scenarios of the future, which they then elaborate in story form.

It is apparent, however, that the projects are manifestly different when examined from a purpose perspective. Eco-Resorts of the Future presents four scenarios:

*Gated Eco-Resort, Village Green, Nature Niche, and Big Green Brand*, (see Chapter 4A, Section 4.3.6). It is notable that, from the point of view of any of the participants in the process, or the organisation that commissioned the study, Habitaem, or any of the other stakeholders including the Tanzanian Tourist Board, it is *not* clear which, if any, would be a commonly held preferred outcome. (While certain elements of the local or international development agencies may prefer the “greener” and-or more community-led outcomes, it is not obvious that this outcome is widely preferred among the broad base of stakeholders, or can in any sense be presumed to be a widely endorsed “target” outcome.) As no preferred outcome emerges from a professionally staged and executed scenario process, it may be inferred that the intention was not to create one. What has been created, in contrast, is a set of four neither-preferred-nor-dispreferred conceptions of change in the eco-resort industry in Tanzania over the 20-year time horizon. What this offers is a series of alternative plausible outcomes, each of which is plausible, none of which is commonly preferred. The purpose (“use”) of this scenario set is apparent in that it (a) allows decision-makers to consider and refine current and proposed tourism investments going forward, to ensure that these are robust to alternative outcomes; or (b) helps decision-makers stimulate new ideas for solutions appropriate to new situations that will plausibly emerge within the planning horizon. Both of these responses amount to future-adaptation and alignment: recognition of and alignment with the realities and opportunities which may come to pass in the alternative iterations of the evolution of the

Tanzanian eco-tourism industry, whether the originators of the scenarios pursue any specific direct agenda in the external world or not.

Live the Future: Scenarios of HIV-Aids presents four scenarios, *Autumn*, *Winter*, *Spring*, and *Summer* (Chapter 4A, Section 4.4.6). For the Metropolitan Life Foundation, and for any other stakeholders across the HIV-Aids spectrum, or even casual observers of the project, it is unequivocal that *Summer* is the most preferable future outcome—the outcome to be strived for. *Autumn* and *Spring* are comparatively less preferred, while *Winter* is a holocaust-dystopia to be strenuously avoided. In other words, an unambiguously commonly preferred future is created as one of the scenarios, which is more than one-among-many alternatives about one way the South African environment *may* evolve. It is a story about how things would look if everything went well, that is, if the recommended “good” decisions are taken by all stakeholders now, to ensure that the preferred future emerges at the end of the time horizon; and it is made more acute by placement alongside non-ideal, negative-outcome scenarios. As above, since this is the work of professional expert scenario facilitators, it is fair to infer that it was their intention to achieve this, that is, to define and depict a scenario that represents an widely endorsed ideal. The purpose here may be inferred as seeking to influence (via publicisation, education, lobbying, fundraising, leveraging contacts and resources, etc.) the evolution of external events—in this case toward ameliorating the course of HIV-Aids in South Africa); that is, to shape the evolution of external macro-trends and uncertainties towards a preferred outcome.

It is therefore proposed that despite the two scenario projects being highly similar along many dimensions, including time horizon, location (Africa), and method (scenarios derived from foundational uncertainties in a 2x2 matrix), a different primary purpose category, or purpose “platform” defines each project, and that this platform is to be understood as future-aligning (adaptive intent), in the case of Eco-Resorts of the Future and future-influencing (visionary-advocacy intent) in the case of Live the Future: Scenarios of HIV-Aids. It is noted that both projects are highly successful in achieving their different purposes, as argued in Chapter 6 (Section 6.3.2). The following section investigates whether the purpose categories that manifest in the case studies are manifest in the 13 projects researched by structured interview.

### **5.2.2 Structured Interviews Findings**

In interview questions 1 and 2 (Chapter 4B, Section 4.8.1) interviewees were asked about the nature and purpose of the project’s commissioning organisation and the specific purpose of the scenario project. The following assessments are made from the interviewees’ responses, in terms of the purpose-platform categories established above (these are preliminary assessments, further corroborated by relationship of scenario purpose to constraint conditions, as explained in Section 5.5. below):

**Public Library Network, New South Wales: The Bookends Scenarios.** Reported purpose as described by interviewee: to look at alternative impacts of forces of change—funding, technology, demographics, etc.—on public libraries in Australia,

to get a sense of what these alternative futures hold and how this might affect the provision of public library services. No scenario is clearly proposed as preferred.

Purpose-platform assessment: Adaptive.

**UPS: Migration to Open Source Systems.** Reported purpose: to think through if UPS' customers were to demand migration to open systems, how would this affect UPS and what would be its best responses across a variety of outcomes. No scenario is clearly proposed as preferred. Purpose-platform assessment: Adaptive.

**Bord Bia: The Future of the Irish Food and Drink Market.** Reported purpose: In the light of rapidly changing food and beverage industry, Bord Bia (the Irish Food Board) wanted to step in and do the long-term thinking that small food and beverage companies could not do. No scenario is clearly proposed as preferred. Purpose-platform assessment: Adaptive.

**Association of Research Libraries (USA): A User's Guide for Research Libraries.** Reported purpose: pushing library planners to think about a set of alternative futures rather than preferred future or incremental timeline going forward. No scenario is clearly proposed as preferred. Purpose-platform assessment: Adaptive.

**Conservation International: Sustainable Futures for Milne Bay.** Reported purpose: exploring alternative future options for ecotourism in Milne Bay. No scenario is clearly proposed as preferred. Purpose-platform assessment: Adaptive.

**World Economic Forum: Future of the Global Financial System.** Reported purpose: focus on understanding the broader uncertainty and dynamics in financial markets and what that would mean for the evolution of the global finance industry.



No scenario is clearly proposed as preferred. Purpose-platform assessment: Adaptive.

**Arctic Council: The Future of Arctic Marine Navigation.** Reported purpose: to facilitate a dialogue process to lead to Arctic Council policy recommendations to achieve common goals in the future. *Arctic Saga* is clearly identified as the preferred outcome. Purpose-platform assessment: Visionary-Advocacy.

**Columbia Basin Trust: Shaping Our Future Together.** Reported purpose: to build future thinking with the clear input of stakeholders of the Columbia Basin region in deciding how resources are to be used, and for these stakeholders to see they have been included in the process of deciding paths of future investment of Trust funds, therein influencing the future. *Blooming Best Basin* is clearly identified as the preferred outcome. Purpose-platform assessment: Visionary-Advocacy.

**Office of the Presidency: South Africa Scenarios 2014.** Reported purpose: a vision-making exercise for South Africa in 2014. *Shosholozo* is clearly identified as the preferred outcome. Purpose-platform assessment: Visionary-Advocacy.

**Cofisa: Biotechnology Scenarios for the Eastern Cape (South Africa).** Reported purpose: to promote the establishment of biotechnology industries in the Eastern Cape. *Rurbal Balance* is clearly identified as the preferred outcome. Purpose-platform assessment: Visionary-Advocacy.

**Nautilus Institute: Peaceful Resolution of the North Korean Nuclear Crisis.** Reported purpose: to get dialogue going among stakeholders from various organisations together to talk about avoiding escalation and nuclear war in the

Korea region. There is a clearly identified preferred outcome: *Contained Non-Nuclear Conflict*. Purpose-platform assessment: Visionary-Advocacy.

**United Nations (FAO): Agricultural Produce in the Nile Basin.** Reported purpose: to create common ground for leaders of the 10 Nile countries in order to implement new insights and new options for co-operation. There is a clearly identified preferred outcome: *Joint Effort*. Purpose-platform assessment: Visionary-Advocacy.

**Trade Knowledge Network: Agriculture in Southern Africa.** Reported purpose: to make sense of complexity in the area of agricultural policy; to have more clarity about the interconnected set of topics that affect agricultural trade and how they could play out in future. *I Believe I Can Fly* is identifiable as the preferred outcome, along with *Chabuda Hapana*. Purpose-platform assessment: Ambiguous.

### 5.2.3 Purpose: Interim Conclusions

Overall, the project interview responses empirically bear out the assessment from the two primary case studies: of the 13 projects, 12 show a primary purpose that may be unambiguously classified into one of either future-aligning (adaptive intent) or future-influencing (visionary-advocacy purpose), as defined above. (As with the primary cases, the scenario projects studied by interview similarly otherwise share many common practices, for example, identifying important trends, or stimulating group discussion of outcomes, or use of the 2x2 matrix.)

It is noted that some projects (Nautilus Institute; Cofisa; and United Nations FAO) present apparent problems, in that some of the apparent elements that—in terms

of the analysis—can be said to characterise either purpose platform, are *not* followed, while the Trade Knowledge Network project is ambiguous in terms of the purpose platform analysis. These problems are further discussed in the argument of this dissertation (Chapter 6), where it is proposed that these incongruities are to be understood as errors made by scenario facilitators—leading to commensurately weakened projects—due to confusions of purpose, or misalignment of purpose and method, or inadequate grasp of constraint conditions (discussed below), that is, problems this dissertation seeks to resolve.

### **5.3 Capacity and Constraint**

Questions 3, 4 and 5 of the structured interviews, and similar questions in the primary case studies, were directed at ascertaining who (what type of participant, and how many) was involved in the scenario-creation workshop, and the perceived power of this scenario-creation group (and sponsor organisation, where applicable) to influence the key external macro-uncertainties they chose to base their scenarios on, either in themselves or via broader structures of leverage; and how this relates to the de-facto choice of these foundational uncertainties. The findings are presented here. Once again results and interpretation of the primary case studies (Chapter 4A) are presented first, followed by the supplementary project interviews (Chapter 4B).

### 5.3.1 Case Study Findings

The scenario project Arup Foresight: Eco-Resorts of the Future was constructed by participants invited by Arup from its various global offices, from its network who served on prior scenario-project events—particularly selecting those with an interest or track record in sustainable business in general or eco-tourism in particular, or those who could make other specific contributions on themes relating to business in Africa. The client, Habitaem, also invited guest participants from its network in sustainable business promotion and ecotourism. This workshop group developed scenarios based on the foundational uncertainties: “Guest Orientation” (Hedonistic vs. Conscientious) and “Property Developer Intention” (Short-term Profit vs. Long-term Engagement). On inspection, it is apparent that the evolution of both of these uncertainties are well beyond the reasonable influence of the participants, or the client, or the scenario-facilitating organisation, or any networks they might expect to be able to leverage. It is apparent that while “Conscientious” and “Long-term” would be commonly interpreted as preferable, it was not expected that any of the scenario originators nor sponsors would have much influence towards this outcome. In other words, the scenario workshop participants built scenarios on foundational axes of uncertainty that are *external* to their sphere of influence. It is apparent that this ties closely and congruently to the purpose of the Eco-Resorts of the Future project as discussed in Section 5.2.1 above, where purpose has been defined as adaptive: to make product and service offerings to best benefit from the evolution of forces over which the scenario builders have negligible control, and so to adapt

stakeholders for optimal outcomes no matter which of the plausible outcomes plays out. In this it is implied that the scenario-builders' own assumptions about their ability to influence the future are low. They therefore effectively take their own influence out of the equation and the analysis does not orient itself to exploring and describing which outcomes the scenario-makers *prefer*. It orients itself to exploring the spread of actual outcomes that may pertain, to create management readiness to manoeuvre the organisation to be robustly positioned for success no matter which outcome comes to pass.

The Metropolitan Life Foundation: Live the Future scenarios project (Chapter 4A, Section 4.4) was produced by a small group of half-a-dozen active participants, who then invited a spectrum of business, government and community representatives for broader input to check, challenge and expand the scenarios. As described in the case study, this wider group was responsible for scenarios based on the foundational uncertainties: "Economic Growth" (High vs. Low) and "Social Collaboration" (High vs. Low). While the former uncertainty is clearly exogenous to the reasonable influence group (or any group), the latter is within the wider influence of the scenario-sponsoring organisation and its various networks of association (including the South African government). In other words, it is apparent that one of the foundational axes upon which the Metropolitan Life Foundation based the Live the Future scenarios was "internal" to its sphere of influence. In this is implied an assumption about the relationship to the foundational axes of uncertainty which is very different from that made by the Arup Foresight: Eco-Resorts of the Future project. It is assumed that the

uncertainty “Social Collaboration” can be influenced away from “Low” outcome and towards “High” outcome. In choosing (at least one, as discussed in Section 5.2.6 below) foundational axis that is internal to the broader leverage of the organisation, the Metropolitan Life Foundation has created scenarios that allow it to gather its own resources, and spur allied resources, in a bid to improve real-world outcomes along the social collaboration dimension, and so improve outcomes for HIV-Aids in South Africa. As above, it is apparent that this ties congruently to purpose as discussed in Section 5.2.1 above, where the purpose here is in identifying an axis of influence, and therein a route to influencing and improving external conditions.

It is therefore posited that the two scenario projects each presuppose a different capacity to influence the external forces of change and uncertainty. Where the Eco-Resorts of the Future scenarios aim to anticipate external macro-uncertainties and deduce alternative plausible outcomes and implied challenges and options for the organisation, while assuming little power to influence macro-uncertainties, the Live the Future scenario project does assume its stakeholders have (collectively in this case) the power to influence macro-uncertainties, so the scenarios are created to give stakeholders with potential influence the vision, tools, focus and motivation to intervene and shape outcomes towards a better outcome.

In terms of the analysis that follows, the ability of an organisation to influence an axis of external macro-uncertainty is referred to as “capacity”; (external, real-world) limitations on this ability is defined as “constraint”. In Arup Foresight: Eco-Resorts of the Future, for example, the scenario-builders’ and client organisation’s

capacity is perceived to be low while power of external constraints is perceived to be high. In the Metropolitan Life Foundation: Live the Future scenarios the organisation's influence capacity is perceived to be high, while power of external constraints on it are perceived to be low, and these perceptions are, on the whole, justifiable. As will be seen in the next chapter, it is argued that perception of ability to influence an axis of uncertainty (perception of high capacity), or reciprocally, perception of low constraint, must be valid for a future-influencing form of scenario to have coherence, and therein possibility of follow-on implementation. Before investigating this issue, it is necessary to view the extent to which the structured interviews corroborate the capacity and constraint findings of the case studies.

### **5.3.2 Structured Interview Findings**

#### **Public Library Network, New South Wales: The Bookends Scenarios.**

Participants directly involved in the scenario-building process (other than facilitators): librarians and allied library policy and planning staff. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil

**United Parcel Service: Migration to Open Source Systems.** Participants directly involved in the scenario-building process: UPS staffers and planners, including strategy planners based in Atlanta, an Advanced Technology Group team in NJ, and representatives from Louisville (where the UPS airline is based). Participants'

perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.

**Bord Bia: The Future of the Irish Food and Drink Market.** Participants directly involved in the scenario-building process: there were 12-20 participants (depending on workshop) who were each representatives of Bord Bia member companies. In addition there were various externals—academics, health professionals, a nutritionist and a journalist. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.

**Association of Research Libraries (USA): A User's Guide for Research Libraries.**

Participants directly involved in the scenario-building process: the development process was implemented by ARL staff, who made provision for wide public input that was achieved through focus groups (conducted in-person and online) as well as a public online survey and one-on-one interviews. The strategic focus and critical uncertainties highlighted in the scenarios were identified through a consultative process with the ARL membership and consolidated at a 2-day invitation workshop attended by about 50 representative leaders from ARL member institutions, augmented by four "project provocateurs." Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.



**Conservation International: Sustainable Futures for Milne Bay.** Participants directly involved in the scenario-building process: the participants were regional stakeholders in Milne Bay, including representatives of the local office of Conservation International, the Milne Bay Tourism Board, small environmental and conservations NGOs, and local hospitality and tourism operators. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.

**World Economic Forum: Future of the Global Financial System.** Participants directly involved in the scenario-building process: there were about 100-150 participants over the life of the project, including representatives from the steering committee, the WEF expert group, and advisory firms Oliver Wyman and Clifford Chance, augmented by various stakeholder groups, including private sector investors, the big banks, regulators and insurers. There were also representatives of the IMF and World Bank, and banking and academic economists. There was a mix of international background and experience (US, UK, and European and specifically Middle East—Saudi and Emirates) among investors. Government ministers were not directly involved in the process. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.

**Arctic Council: The Future of Arctic Marine Navigation.** Participants directly involved in the scenario-building process: the workshops each had about 30 people made up of climate change experts, Arctic Council representatives, and shipping and

mineral-mining stakeholders from the Arctic region. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: the "governance" uncertainty axis was perceived to be within the influence of the Arctic Council and its network of associations.

**Columbia Basin Trust: Shaping Our Future Together.** Participants directly involved in the scenario-building process: there were 300 stakeholders, organisations, groups, businesses, and associations based in the Columbia Basin region. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: both the matrix axes, "Ability to Create Sustainable Regional Systems" and "Response to Changing Economic Conditions" were perceived to be within the influence of the Arctic Council and its network of associations. Uncertainties that were influenceable by the stakeholders were specifically chosen, in fulfilling the mandate of the project, which was to demonstrate inclusivity in stakeholders (i.e. not just the Trust) determining the future of the region.

**Office of the Presidency: South Africa Scenarios 2014.** Participants directly involved in the scenario-building process: there were about 20 people involved, who were all very senior people in the South African community—various Director-Generals e.g. from Science & Technology, and from Treasury, as well as ex-Ambassadors and other well-known figures such as Jill Marcus and Sheryl Carolus. The process reported directly to the (Thabo Mbeki) Cabinet. Participants'

perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: while the ups and downs of macro-variables such as "Global Economic Conditions" were clearly beyond the influence of even this group, the axis "Social Cohesion and Equity in South Africa" was seen to be an area that participants could influence.

**Cofisa: Biotechnology Scenarios for the Eastern Cape (South Africa).**

Participants directly involved in the scenario-building process: In total there were 30-40 participants from the private sector, public sector, donor community, farming and agriculture, academics, and representatives of SMEs in the region. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: there were a few strong "influencers" in the room, particularly people in economic development, government policy, and CEOs of SMEs, but overall perceived influence over the evolution of the economy (Knowledge Economy vs. Neo-industrialisation), and over urbanisation, was understood to be low.

**Nautilus Institute: Peaceful Resolution of the North Korean Nuclear Crisis.**

Participants directly involved in the scenario-building process: the group of 16 included thought leaders, researchers, and academics from US-based think-tanks. It was not directly a group of government policy makers or (nuclear war) military analysts. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.

**United Nations (FAO): Agricultural Produce in the Nile Basin.** Participants directly involved in the scenario-building process: this was a group of 25 people from the 10 countries that have a stake in the region (all contiguous countries except the People's Republic of Congo). The participants were mid-level people in government posts, in positions to do with expertise in water and agriculture. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: nil.

**Trade Knowledge Network: Agriculture in Southern Africa.** Participants directly involved in the scenario-building process: The delegates were trade and agriculture analysts and sector stakeholders from the region, both governmental and non-government. There were Zanu PF representatives in the room. Participants' perception of their or their organisations' capacity to influence outcomes in the foundational uncertainties chosen for scenario construction, as reported by interviewee: perception of capacity to influence external investment environment (The "Megabucks" vs. "Money Drought" axis) was nil. But while there were no direct agricultural policymakers from Namibia or Zambia, there were those from Mozambique and from Zimbabwe—people who had a direct say in determining food security and trade-policy in the region, therein some influence over the evolution of the "Domestic Policy" uncertainty.

### 5.3.3. Capacity and Constraint: Conclusions

The interviews reveal that some groups saw no influence at all over the evolution of external macro-uncertainties, while others perceived external uncertainties to be within their sphere of influence. This perception of presence or absence of influence was—in most cases, exceptions described below—congruent with the purpose of the project as defined above (Section 5.2.2). Where the purpose was adaptive, participants' perception of their capacity to influence external uncertainties was minimal, which is to say that external constraint conditions were viewed as strong, scenario-structuring 2x2 axes where influence capacity was minimal (representing perception of external constraint conditions as not subject to influence) were chosen. Where purpose was visionary-advocacy, participants' perception of capacity to affect one or both of the external uncertainties in the matrix was significant, which is to say that external constraint conditions were viewed as weak, scenario-structuring 2x2 axes where influence capacity was strong (representing perception of external constraint conditions as subject to influence) were chosen.

It is observed that this was the situation “in most cases”, and this is because the research also captures and reflects scenario-facilitators' weaknesses of practice, as noted in section 5.3 and discussed in Chapter 6 (Section 6.6), and therefore records cases where perception of influence does not align with any reasonable measure of real-world influence, that is, capacity to influence external uncertainties has been overestimated (or external constraints on such influence underestimated). As will be seen in the discussion of the “Capacity-Constraint

Audit” in Chapter 6, validation of perceived (or wished-for) influence is a fundamental step in assessing purpose and constraint-congruent scenario construction choices in the service of this purpose.

#### **5.4 Mechanism of Scenario Purpose Choice Illuminated**

As established above, it is apparent in both the primary case studies and the project interviews that the purpose platform of a scenario set is closely associated with choice of foundational axes of uncertainty upon which the scenario set is built. In fact, in this the research also reveals the direct mechanism in 2x2 scenario construction that shifts purpose between adaptive and visionary-advocacy purpose modes. This is achieved via the selection of the foundational drivers of uncertainty upon which the scenarios are based, as follows: if the scenarios are based on a matrix architecture with at least one uncertainty that has a “commonly held” good vs. bad polarity (one outcome would be better than the other for the vast majority of stakeholders), *and* the scenario-project creators proceed under the assumption that that uncertainty is reasonably under the control of the organisation (or its wider influence base), then visionary-advocacy scenarios will result. In other words, whether intended or not, a visionary-advocacy purpose scenario set is made willy-nilly by choosing at least one axis of external uncertainty which has a “commonly held” better vs. worse outcome, where this externality is also assessed to be subject to influence. In the Metropolitan Life Foundation: Live the Future scenario set, for example, the “Economy” (Good vs. Bad) uncertainty axis has a positive-negative dimension, but it is not seen to be

under the control of the Metropolitan Life Foundation, or Metropolitan Life itself, or the wider life insurance industry, or even the South African government. While better or worse economic policy may make a difference, the economy can be assumed to be at the mercy of global macro-economic conditions, that is, external to reasonable influence. However, the “Social Collaboration” uncertainty (High vs. Low) axis, while not directly controllable, is seen by the scenario makers to be within the power of policymakers, corporations, community organisations, and ordinary individuals to influence towards a positive outcome. This axis therefore provides describable outcomes that are (a) commonly held to be preferable vs. non-preferable *and* (b) responsive to the levers of influence; therein the scenarios become about illuminating and encouraging the positive choice, that is, they become visionary-advocacy scenarios. In contrast, the axes chosen in the *Eco-Resorts of the Future* scenarios, while presenting good vs. bad dimensions, are both outside of the control of all stakeholders and policymakers; therefore they lead to scenario outcomes that are not subject to influence by stakeholders, that is to adaptive scenarios.

This pattern is corroborated across the interviews presented in Chapter 4B. For example, In the Arctic Council: Future of Arctic Marine Navigation (Chapter 4B, Section 4.9.4) the axis “Resources and Trade Demand” (More vs. Less) reflects the demands of the external world beyond the control of Arctic governments. The other axis, “Governance” (Unstable, Ad-hoc vs. Stable, Rule-based) is within the influence of the Arctic Council, and it is through the adoption of this axis in building the scenarios that the scenarios are made to be of the visionary-advocacy

type. By contrast, in the UPS scenarios set (Chapter 4B, Section 4.9.6), when UPS is considering scenarios of open-source software, its chosen axes of uncertainty are: “Cost of Ownership” (High vs. Low) and “External Push/Acceptance” (High vs. Low). Both of these are clearly beyond the company’s power or mission to control, and readily acknowledged as such, and the scenarios therefore proceed in adaptive form.

The corollary of this insight is that if the organisation *seeks* to build visionary-advocacy scenarios, it must choose at least one uncertainty of good vs. bad character, that is reasonably and validly under its influence, or its wider network of influence; if it seeks to build adaptive scenarios then it must take care not to do this. The implications of this are drawn in the argument in the following chapter.

It is observed that in the interview responses in Chapter 4B, almost all respondents were at pains to stress that they were not building “good and bad” (or “heaven and hell”) scenario worlds, which is commonly held by most scenario practitioners to be a simple-minded mistake (notwithstanding that outcome spreads of this sort are very commonly seen). However, the research suggests that the good-bad format is a perfectly valid outcome for scenarios when the wider organisational purpose, and purpose in scenario planning, is visionary advocacy—such a purpose is well-served by the identification of a good-outcome vision that motivates and guides action towards influencing vectors of uncertainty in the service of a better outcome (or a dystopic vision that develops understanding of negative evolution and motivates resistance) and serves to publicise an associated agenda for achieving it.



## 5.5 Problems of Scenario Follow-on Use

The final item in recording pertinent observations from the research material pertains to Question 6 of the interviews (concerning follow-on use of the scenario set after completion of the workshop and workshop-document-writing phase), where scenario practitioners reported that many scenario projects did not in fact go forward effectively beyond the workshop and write-up stage. That is, a common response from interviewees recorded in Chapter 4B was to lament that following an apparently good workshop, where participants were suitably challenged, had their minds opened, formed scenarios that were instructive and wrote them up into a venerable document, there was a failure of a follow-on use. The fruits of the project did not go forward into concrete planning, decision-making and strategy formation.

Among the 15 projects studied for this dissertation, only seven were reported to have had a clear and constructive function after the workshop-document write-up. These were Metropolitan Life Foundation: Live the Future; Arup: Eco-Resorts of the Future; Arctic Council: The Future of Arctic Marine Navigation; World Economic Forum: Future of the Global Financial System; Association of Research Libraries (USA): A User's Guide for Research Libraries; Bord Bia: The Future of the Irish Food and Drink Market; United Parcel Service: Migration to Open Source Systems; while one other project, Columbia Basin Trust: Shaping Our Future Together, is reported to be going into follow-up phase at the time of writing (third-quarter, 2012). This represents an implementation rate of roughly 50%.

In raising a connection between problems in scenario-building and lack of follow-on implementation, it is necessary to note that to assert a simple causality between quality of the work and lack of a follow-on implementation phase would be facile. There are cases where the project stalls after the scenario-building stage due to lack of funds, or delay in funding allocation (which is particularly the case with the Columbia Basin Trust project), or due to other external and situational factors. The implementation of the Nile Scenarios set, for example, was stalled by the “Arab Spring”, which rendered a complete change of senior government personnel in Egypt. Therefore it would be spurious to directly infer the quality of the project by the type or amount of follow-on implementation it achieves. However, it is apparent from the research that none of the projects identified as problematic, above, saw effective implementation, while all of the projects studied that did achieve follow-on implementation are methodologically congruent with the conditions of success in terms of the argument of this dissertation. The implications of this are addressed in the argument in the following chapter (Section 6.6).

## **5.6 Purpose Platforms: Conclusions and Problems**

The argument as to the implications of the research, and its contribution to knowledge proceeds in the next chapter. Prior to this, it remains here to examine particular observations from the research material thus far that present apparent problems in purpose category distinction, and determine to what extent this changes the primary analysis of findings, if any.

### 5.6.1 Preference for Legacy Conditions

The findings demonstrate a category distinction between scenario project types based on the alternative purpose platforms described. It is apparent however that there are situations where an adaptive-scenario purpose format returns a distinctly “preferred outcome” for a particular organisation or organisation type—in other words, a situation arises (despite apparent adaptive intent, and therein an expected pursuit of value-neutral scenarios) where the organisation concerned views one of the scenario outcomes as “better” or “best” of the set. This can be seen to be the case, for example in United Parcel Service: Migration to Open Source Systems, where the scenario *Why Bother?* is obviously to be preferred by the organisation in that it represents no requirement to change service models or offerings within the parameters of an industry (logistic systems), where it is currently the established industry leader; that is, its easiest path to continued success rests with the continuation of this outcome into the future. Another example is Conservation International: Sustainable Futures for Milne Bay, where the scenario *Kula Connections* would be preferred by tourist operators over other scenarios for the region. A further example in this vein, with a twist, is Bord Bia: The Future of the Irish Food and Drink Market, where there is an apparent preferred future, but it is different for different stakeholders: *Local & Ethical* would be preferred by organic farmers, while *In the Lab* would be preferred by multinational food corporations.

This manifestation of scenario preference is common, and effectively inevitable, because all companies or organisations that enter the scenario process do so with *legacy* competencies, that is, areas of advantage in an industry or sector, or products or services already established in the market. From the point of view of these pre-existing competencies and investments it is very likely that one or other of the scenarios will look more attractive—will provide the most advantages or the most hospitable climate for the organisation as it currently stands, because the scenario outcome accords with what a business or organisation is currently good at, or well branded for, such that, were it to come to pass, it would offer continued intrinsic advantages, and therefore is preferred. (Or, as in the case of Bord Bia, there may be more than one stakeholder group with such legacy preferences, based on prior market position.)

Therefore what we have here is a legacy-based preference; a preference based on “found” congruence with a past advantage, not to be confused with a preferred or ideal new future, in the sense of the visionary-advocacy scenario formation as defined above. In found congruence there is no wide stakeholder concurrence around this preference, no sense that all organisations or organisation types in an industry would agree that the scenario was preferred (because not all have the same past advantages or legacy competencies); nor is there any implication that any organisation can significantly influence macro-externalities to achieve their preferred outcome. The preferred scenario here is merely the “good luck” future for the organisation that currently holds the competencies and advantages which would retain their value if that scenario came to pass.

The wider implication of the future-adaptive scenario project as a whole is that the organisation should nevertheless be prepared to adapt to succeed in any of the scenario worlds it sees arising, not just the one where it holds past advantage, because it does not have significant say over which future will occur. It may turn out that the future evolves in a way that is advantageous with respect to its legacy competencies, but the basic purpose of the scenario building process is to force the organisation to consider how it would respond if the world evolved in ways that are less congruent with past advantages.

### **5.6.2 Role of Circumstantial Influence**

In similar vein, it is necessary to deal with situations where “weak influence” exists in adaptive scenario formats. An example is Bord Bia: The Future of the Irish Food and Drink Market where, as observed in Chapter 4B (Section 4.9.10), differences in anticipation of influence over externalities existed: small companies perceive themselves to be completely at the mercy of external forces of change, while large entities, for example Tesco Ireland or The Irish Food Board itself, felt they could have at least some influence over such external change drivers (including on the matrix uncertainty axes: “Attitudes towards Consumption” and “Motivation for Eating”). Similarly, UPS acknowledged (Section 4.9.6) that by virtue of it being so large and influential in the logistics industry, it could well have an influence in many areas of it, including over the Cost of Ownership (of open source systems) uncertainty axis in its scenario matrix, via its power to negotiate price breaks when buying equipment or professional services, for example.

What we have here is circumstantial influence, where an organisation finds itself with some natural influence over the macro-uncertainties it faces, which is correlated with the size or power of organisation with reference to the type of uncertainty. It is therefore able to exert this influence over its constraint conditions and therein, possibly, to some extent shape external forces towards outcomes preferential to its legacy profile. However, as above, the fundamental purpose of the scenarios remains to spur the organisation to avoid reliance on this (weak) influence; rather to consider how the organisation could and should adapt if its influence over externalities was to turn out to be ineffective—for example UPS forcing itself to consider its responses to the broad adoption of open source software in the logistics industry, despite its own industry power. Weak influence of this type is therefore also a “found” condition, not to be confused with the influence implied in visionary-advocacy scenarios, where a very great deal of influence is assumed (or is hoped for, or expected to be created and harnessed via networks of leverage) and the preferred scenario is built to motivate and enlarge this influence. While the weak influence of adaptive scenario-building assumes an organisation of significant size and power even to achieve minor influence over externalities, the visionary-advocacy scenario is often the product of an inconsequential NGO, with effectively no real influence anywhere, other than the power to motivate and harness an alliance of influential parties (via a visionary or dystopic scenario).

## **5.7 Markers of Scenario Purpose Distinction**

Based on the research findings presented in Chapter 4, as analysed in Section 5.2 above, and despite the potential caveats elaborated in Section 5.6 above, it is established that purpose meta-categories exist in scenario planning, and these may be fairly represented as future-influencing (visionary-advocacy purpose) and future-aligning (adaptive purpose), and that with negligible exception—which it will be argued in Chapter 6 (Section 6.6) may be understood as facilitator error in project setup—scenario projects fall into one or other of these purpose categories, but not both. Observations from the research reveal further additional clear markers that identify visionary-advocacy scenarios in purpose-based distinction from adaptive scenarios, as follows:

### **5.7.1 Consensus Building**

Across scenarios projects in the research identified as of visionary-advocacy purpose (Metropolitan Life Foundation: Live the Future; Arctic Council: Future of Arctic Marine Navigation; Columbia Basin Trust: Shaping Our Future; Cofisa: Bio-technology Scenarios for the Eastern Cape; Office of the President: South African Scenarios 2014, and United Nations FAO: Agricultural Produce in the Nile Basin), a common unifying and identifying trait of “consensus-building” is apparent. These scenarios are created by groups representing divergent interests (as opposed to a single corporation, for example), each of which is asked via the scenario process to elicit its preferences, values, priorities, hopes and fears for the future, in order to find common ground and develop a consensus outcome by which disparate and

potentially competing interests reconcile along points of agreement (and develop strategic alignment and “buy-in”) towards the common preferred future they can agree on. The scenarios identified in this research as of adaptive purpose, by contrast, do not attempt to elicit or promote a consensus of future ideals or perspectives in the group, nor do they seek consensus support for any scenario. Specifically, they seek the opposite—divergent, iconoclastic thinking to challenge consensus which may be a manifestation of “group-think”, that is, a manifestation of the management myopia the scenario process seeks to overcome.

### **5.7.2 Public Dissemination**

Further, the various scenario projects identified as being of visionary-advocacy purpose in section 5.2.2 above, all share the identifying characteristic of active public and media promotion, while those identified as being of adaptive purpose do not. This may be coherently analysed as follows: if visionary-advocacy scenarios are defined in part by their intention of influencing the evolution of external conditions, but the commissioning organisation is often effectively powerless in itself, the process therefore relies on the organisation harnessing and leveraging forces beyond itself. This is achieved by raising broad stakeholder and public awareness. In other words, broad dispersion of the visionary message is the mode of leverage by which an ordinary organisation harnesses forces of influence greater than itself to affect and change the evolution of macro-externalities. In this it can be understood that the very point of making visionary-advocacy scenarios is to publish them, to promote the character of the preferred (or dispreferred) future



to all parties that have a stake in the outcome, along with advocated action towards the preferred outcome, to enlist and channel broad support towards it.

As a typical case, the Metropolitan Life Foundation: Live the Future scenario set was (and remains) widely disseminated via public presentation, a dedicated Web site ([livethefuture.co.za](http://livethefuture.co.za)) as well as CDs, presenter tools, banners, badges, streamers, and allied razzmatazz. The *Summer-utopia* message, and blueprint for moving forward to it, is disseminated far-and-wide in order that the scenarios function fully as they are intended to—as a lobbying and rallying device for public participation and problem-solving that extends far beyond the obvious reach of the Metropolitan Life Foundation itself. In this it can be seen that the Foundation creates and uses the scenarios to enter the public debate on HIV-Aids in South Africa, to lead and harness the power of public opinion, stimulate a public campaign, lobby government, and effect other forms of advocacy, all towards creating the social and political context for enhanced funding, better legislation, and allied investment to improve future social and economic outcomes, in this case the amelioration of HIV-Aids in South Africa.

By contrast, it is apparent among those scenarios studied that were identified as of adaptive purpose, that these are typically not disseminated widely; in fact they are proprietary (at least until they go out of date), particularly when they are done in corporate settings, for example Arup Foresight: Eco-Resorts of the Future, or the United Parcel Service: Migration to Open Source Systems set (where research authorisation had to be obtained by the researcher to access and use the material, even for strictly academic study). This may be interpreted as follows: in cases such

as these, the scenario-sponsoring organisation is not seeking to influence its externalities; it is looking for the advantages to be had in adapting itself to anticipated changes and surprises in the future it does not greatly control, in advance of its competitors. Thus there is no advantage to it releasing its scenarios into the public realm and therein to competitors.

There are apparent exceptions to this general rule, (e.g. Conservation International: Sustainable Futures for Milne Bay, Papua New Guinea) where adaptive-purpose scenarios are found in the public domain. This may be explained by wider organisation purpose: where adaptive scenarios are done by academic and-or welfare organisations, using public funds, such scenarios are created in the public domain, therefore they are publicly available no matter what their purpose. However, as adaptive format scenarios, they remain minimally promoted when compared to the extent that visionary-advocacy scenarios identified here can be shown to have been actively promoted in the public realm.

In another apparently anomalous situation, it is possible to find an adaptive-mode scenario set that is actively promoted and disseminated, as is the case with the World Economic Forum (WEF): Future of the Global Financial System scenarios, where the WEF made much publicity of the scenario set, not least at its own conference in Davos. Again this may be understood in terms of wider organisation purpose: WEF makes the scenarios in adaptive mode, as in terms of the definitions above, but does not or cannot in itself create competitive advantage from adapting itself in terms of the scenarios. (It is not a bank or a financial institution of any kind.) Therefore, instead it seeks advantage (in this case organisational self-

promotion) for itself as a sponsor of important thought-leading work, which it puts into the public domain for any or all organisations in the financial sector, or regulators thereof, to adaptively consider their options.

### **5.7.3 Non-correlation with Public Domain Orientation**

It is intuitive to expect that where scenarios are intended for public benefit, visionary-advocacy scenarios that illustrate the alternative outcomes from different policy choices, and allow the “best” outcome to be identified and promoted, would be the scenario mode of choice; alternatively where competitive or for-profit situations exist, that the scenario mode would be adaptive, facilitating a business’s earlier or more profitable adaptation to future change than its competitors. However, observations from the case studies and project interviews presented here show that there is no obvious correlation between scenarios done in adaptive mode and a corporate or competitive purpose, or those done in visionary-advocacy mode and public-benefit purpose, or vice-versa. The public-benefit Live the Future scenarios are backed by the corporation Metropolitan Life, but produced in visionary-advocacy mode. The non-profit Irish Food Board scenarios uses adaptive scenario construction to help Irish food companies become more competitive in a changing food industry, yet adaptive scenario construction is also used by the Public Library Network of New South Wales, where the purpose is the general improvement of a public resource. The World Economic Forum: Future of the Global Financial System, and Conservation

International: Sustainable Futures for Milne Bay, Papua New Guinea scenarios  
both achieve public benefit purpose with construction in adaptive mode.

\*\*\*

University of Cape Town

## **Chapter 6: Argument and Conclusion**

### **6.1 Overview**

The following section deals with the theoretical and practical implications of the research observations and analysis. It forms the argument for refining various theoretical tenets of scenario planning and for augmenting its practice, which makes up the contribution to knowledge proposed by the dissertation.

### **6.2 Introduction**

The research presented in this dissertation emerged from the problem that, while scenario planning has become a widely accepted and arguably the pre-eminent foresight tool for businesses, governments and social enterprises trying to assess and navigate the fast-changing unpredictable operating environments; at the same time perceived benefits are unclear to many decision-makers. This is because the process often returns results that are not of a type or in a form usable in the real-world planning needs of the organisation, (for example in creating narratives that orient implementation responses towards “changing the world” which may not match managers’ intentions at all), therein hampering adoption of scenario methods by business or institutional leaders. This means that this potentially effective and powerful tool for improving management decision-making is avoided or not used correctly, which leads to a significant reduction in an organisation’s ability to navigate forward decision-making, and therefore to it becoming vulnerable to changing circumstances not anticipated or adequately considered. This may lead to

damage to a company or its stakeholders over time, or an inability to grasp and leverage the opportunities that a changing world presents, at the same time as the popular will of organisational leadership turns against the scenario method (or foresight work in general), based on its apparent lack of utility.

Based on both practice and research experience in the field, the researcher was aware of an apparent high-level distinction among foresight purposes, with implications for quality assessment in prediction, and so it was suspected that a problem in scenario-planning efficacy, and therefore relevance, may have to do with a conflation of future-aligning and future-influencing purposes in scenario project situations—in other words, management misgivings or confusion over applicability of outcomes may be related to the adequacy or inadequacy of purpose-based and context-constraint discriminations—and that despite a small, but consistent effort to create a typology of scenario practice within the academic literature, there has been little academic research that properly tackles the existence or implications of a purpose-based distinction in scenario work. Visionary “normative” scenario-building, which seeks a “better world” normed to consensus aspirations is a fairly well-understood concept, but what this might stand in contrast to, or the limits and terrain of each, or the implications of inadequately delineating between them, was lacking academic clarity.

It was therefore anticipated that investigating this matter formally via original research would provide an academic basis for improving understanding of the issues involved, and therein a basis for intervention in the theory of scenario planning, thus improving real-world practices. This dissertation therefore set out

by way of focused academic research into scenario planning case experience to identify, validate, and draw theoretical and practical implications to advance the understanding and use of scenario planning along this dimension, as the basis for a significant contribution to theoretical knowledge and practice in the field.

In order to proceed towards this, the research question formulated, following the sceptical format, was whether it could be empirically verified that the array of current scenario planning practices be similarly classified into two broad categories, based on purpose, and each implying a different necessary relationship with external constraint conditions? If so, what was the nature and extent of these purposes and constraint-condition situations and how might such a constraint-based purpose perspective improve understanding of scenario practices and guide practitioners to better methodological choices?

Towards this end, Chapter 1 developed the origination, motivation and scope of the research, identified the research choices faced, and described the research methods adopted. The research path called for an arc that encompassed both primary case studies and project-based structured interviews, as outlined in Chapter 1 and presented in Chapters 4A and 4B. This followed a review of academic discourse pertinent to the research in Chapter 2, which addressed key theoretical tenets in scenario planning relevant to the research terrain, and Chapter 3 which developed necessary understanding of the history and origins of the scenario field, with particular reference to the emergence and genesis of purpose in scenario work. Across both parts of Chapter 4, 15 real-world scenario projects were studied and presented. This first involved document study across a broad range of scenario

project reports, followed by project selection, and then conducting of both primary case studies, and structured qualitative interviews with core facilitators or close stakeholders of scenario projects, to establish purpose of the organisation and the specific scenario project, and the relationship between purpose and both the context of the project and key methodological choices made. Taken together, Chapter 4A, Case Studies, and Chapter 4B, Project-based Structured Interviews, describe the full terrain of the research as conducted. Chapter 5, Research Analysis, reported the key observations and findings from the research, and developed the various strands of analysis that were possible to be elaborated from these findings. This concluding chapter, Chapter 6, draws together the threads of the argument, provides conclusions relevant to the research question, and implications for contribution to knowledge. A final section (6.8) deals with directions for further research.

### **6.3 The Argument**

#### **6.3.1 Adaptive vs. Visionary-Advocacy Purpose**

The research presented and analysed in this study establishes that (a) project purpose is a defining consideration in scenario project formation, one which forms a demarcation between apparently similar types of project; and (b) verifies that scenario planning projects may be defined into two major purpose categories, future-aligning (adaptive) and future-influencing (visionary-advocacy), which (c) may or may not be congruent with the underlying organisational purpose. As demonstrated in the projects studied, scenarios with adaptive purpose are designed to tell consolidated narratives about the interactive evolution of external



uncertainties over which the organisation has no or minimal influence, to render visible important plausible outcomes for management consideration, and therein improve the organisation's competitive alignment with these to improve future performance. Such scenarios provide the basis for the organisation changing itself (or its products and strategies), where necessary to align as advantageously as possible with an external (and possibly changing) environment it cannot greatly influence. By contrast, scenarios with visionary-advocacy purpose are designed to tell consolidated stories about the interactive evolution of external uncertainties over which the organisation (or a wider sphere of resources it can harness) perceives potential influence, in order to provide the basis for shaping the evolution of the external future situation itself. Here scenarios allow an organisation to identify and promote a preferred outcome, that is, leverage its resources toward influencing external future conditions towards those it (or society as a whole) prefers.

It is noted, as is elaborated in the section on scenario benefits and purpose in Chapter 2 (Section 2.2), that this analytical distinction is not in itself new. However, based on the research presented, it is established (beyond the state of the literature at present) that this form of purpose classification is not "just one among many" lines that can be drawn in understanding types of scenario practice, nor two among various benefits that may be gained via scenario planning; but rather that these purposes are fundamental meta-categories, the observance or lack of observance of which has overwhelming repercussions for the efficacy of scenario projects as a whole. This meta-category distinction, when correctly

assessed and observed, facilitates effective use of the tool, but proscribes effective use when not recognised or not observed, as further demonstrated in the problems discussion (Section 6.6) below.

### **6.3.2 Validity of Both Purpose Approaches**

It follows from the above that it is established (also beyond the state of the literature at present) that the meta-categories of scenario purpose are incompatible with each other in the sense that the different purpose modes cannot be simultaneously met. The two broadly defined purposes each imply a categorically different use of the scenario process, with different use of similar processes, and failure to recognise the incompatibility implied in this distinction greatly diminishes the efficacy of the tool for either purpose. However, it is not argued that either adaptive or visionary-advocacy scenario approaches are preferable in themselves for scenario building, nor lead to better products. It is argued that each is fit for its different purpose; and the scenario approach that is congruent with the organisation's wider underlying purpose of planning, both in general and in the particular planning instance, should be applied. The Metropolitan Life Foundation: Live the Future scenarios of HIV-Aids in South Africa scenario set is ideal for the outcome intended—to mobilise social change and policy intervention (harness and increase government and insurance industry influence) to mitigate the future of the AIDS epidemic. The Arup Foresight: Eco-Resorts of the Future scenario set is equally fit for purpose in preparing a Tanzanian resort developer and allied national tourism stakeholders to adapt to important changing facets of the global hospitality

industry they have little influence over, and cannot ever hope to have noticeable control over (while they do control how far, how well, and how innovatively they adapt).

Further, it is not argued that the visionary-advocacy scenario mode is more oriented to bringing about a “preferred future for the organisation” (as is sometimes claimed): both adaptive and visionary-advocacy scenario modes seek to bring about what may be understood as a preferred future for the organisation. It is the path to a preferred future that is different: the former achieves it by aligning the organisation with changing external conditions that remain uninfluenced; the latter achieves it by influencing external conditions. Furthermore, it is not argued that visionary-advocacy (future-influencing intent) scenarios are more “pro-active”. Both scenario modes are, in theory, equally pro-active and equally oriented to managers setting and fulfilling an agenda. In the adaptive case, the organisation is active *on itself* to adapt to external conditions; in the visionary-advocacy case it is active on the external conditions.

### **6.3.3 The Purpose Examination**

Further to the argument, the implication of purpose category pre-eminence as validated by the research is that a dedicated formative stage becomes necessary to ensure validity of the scenario project. That is, when setting up the scenario planning project, the research presented here suggests the organisation should formally investigate its a-priori purpose in undertaking the scenario project (not only in general terms, for generally perceived future-scoping or scenario-practice

benefits as elaborated in Chapter 2), but also specifically in terms of the adaptive vs. visionary-advocacy purpose divide. In other words, the organisation should first identify to itself whether its purpose in constructing scenarios of the future is to explore future possibilities in order to become conscious of and ready for as wide a range of outcomes as possible, to guide its active adaptation to the external world it has little influence over; or whether its purpose in constructing future scenarios is to help it (with the help of others) intervene in and influence external events to bring a preferred outcome into reality. The purpose decision will originate in part from the character of the organisation: whether its on-going mission is in any sense to change or improve the external world, or whether it is merely to optimise for success in whatever future will pertain in its sector. The decision will also derive in part from a judicious view of constraint conditions—that is, the strength of external uncertainties that frame the decision terrain—and the capacity of the organisation, including its wider sphere of leverage, to influence these externalities, as argued in the next section.

#### **6.4 Capacity and Constraint**

So far it has been argued from the research that an organisation may validly adopt a scenario-planning project within either future-aligning or future-influencing purpose structures, and that a fundamental criterion of overall scenario-project success is whether this choice is congruent with the pre-existing mission or purpose of the organisation, and therefore an a-priori examination of purpose is necessary to assess which of the two purpose platforms to adopt. A further

consideration arises: does the scenario-building subject (the organisation or stakeholder base the scenarios are created for) in fact have enough influence, or ability to broadly leverage enough influence, over the external forces in its future operating environment so as to justify scenarios based on the assumption that such influence exists? If the ratio of influence is small—if external forces are overwhelming and thus the external framing constraints that apply cannot conceivably be overcome, or if the capacity to overcome them is weak, then the congruent option is for the organisation to form scenarios with adaptive orientation. However if the ratio of influence is large—if the organisation validly sees a way to command external forces of macro-uncertainty towards its will—it is coherent to proceed with visionary-advocacy scenarios. This is to say, assuming the organisation determines its purpose to be future-influencing, as defined above, and therefore correctly and congruently chooses to produce scenarios in visionary-advocacy purpose mode, the question remains: has it in fairly assumed that the important uncertainties it faces (or at least *one* of them, around which it builds its scenarios, as explained in Chapter 5, Section 5.4) are reasonably under its influence, or the wider influence it can muster? The strength of constraint conditions—that is, strength of external uncertainties faced—and capacity of the organisation (including its wider network of influence) to overcome them, frames the valid limits of the organisation's aspiration with respect to intervening in and influencing the evolution of external macro-uncertainties, and thus the valid limits of use of visionary-advocacy scenarios. It is therefore argued that, to validly proceed in visionary-advocacy purpose mode, the organisation is required to

assess and verify that its sphere and extent of influence is considerable when set against the external forces shaping its sector; therefore that an acknowledgement of the counter-influence of constraint conditions and a reliable accounting of capacity to challenge them (if any) is a necessary guiding step prior to adoption of either adaptive or visionary-advocacy scenario purpose mode, in order to achieve congruence between the constraint conditions an organisation faces and the ability to overcome these implied in the scenario purpose mode chosen. Where limits of an organisation's influence are ignored, misjudged, or otherwise transgressed, scenarios that defy real-world constraint conditions, that is, which are oriented towards influencing external uncertainties beyond the influence power of the organisation, may emerge. (This is one of the errors flagged in Section 6.6 below, and therein one of the primary problems in application of scenarios to real-world planning, as described.) Similarly, there may arise cases where ability to influence external constraints is underestimated, with similarly problematic outcomes in providing scenarios that are unsuited to the real external conditions the organisation will go forward into.

Observing this capacity constraint conditions implies some form of capacity-constraint assessment whereby an organisation sets its own power and leverage against the broader power of the forces of external change and uncertainty. Therefore it is argued, on the basis of the research findings, that another early-phase step is required in scenario-building practice that currently is not accounted for in the literature: a formal investigation or "audit" of the framing situational

constraints around the organisation, and the power of the organisation, including allied forces at its disposal, to influence these constraints.

#### **6.4.1 The Capacity-Constraint Audit**

As things stand in scenario theory and practice, it is common in a project to spend the early part of the first workshop looking at the external world and assessing forces of change and uncertainty. The audit proposed would add a further stage to this, by which the organisation would determine which of these external forces (that is, constraints on the organisation) the organisation might be in a position of power to influence, if any? This implies asking questions and conducting appropriate research along the lines of: What is our sphere of influence, and what is beyond it? How strong are the external conditions and how strong are we? Which other forces or players may be stronger, or have more influence? Which are the factors or outcomes more pliable to us, and which ones are not? Do we have, or can we see, a way to increase control over the key uncertainties that face us, or otherwise extend our sphere of influence? Answering these questions with appropriate research, where necessary, would determine how strong the shaping power of the organisation actually is, and-or which domains it has shaping influence over, if any.

In postulating such an audit, it is readily acknowledged that constraint and capacity can be difficult to know. This is sometimes relatively easy for a commercial corporation, where most macro-externalities are commonly assumed to be “uninfluenceable”. However, governments or large national or international

organisations are often genuinely influential players in determining outcomes, and therefore may have a vexing time auditing what they can and cannot influence. It is noted that determining best practices for this type of audit is a necessary topic for future research, as elaborated at the end of this chapter.

## **6.5 Linking Capacity to Purpose**

A capacity-constraint audit will lead the scenario-building organisation to an understanding of how strong its influence is over external macro-uncertainties as they affect its sector, and where particularly that influence lies. On this basis, the organisation would then be empowered to make a valid scenario purpose-platform choice: adaptive if its influence is low; visionary-advocacy if high (or restrict expectations of influence to where it is high). This will, in effect, be the second choice made in setting up a scenario study, the first being the outcome of the purpose assessment described above (Section 6.3.3) where the organisation considers the fit between the purpose implied in the scenario approach and both its own pre-established purpose as an organisation and its purpose in undertaking scenario planning in the particular instance. Together these steps determine congruence between the organisational and scenario purpose, and congruence between the scenario purpose and external framing conditions: the correct choice of scenario purpose mode being that which produces congruence with both the organisational purpose and its real capacity to influence its contextual constraints. This implies resultant methodological choices, particularly in determining the nature of the foundational uncertainty axes of the scenario matrix which (in the 2x2 method) determine which purpose mode the scenarios adopt (as explained in



Chapter 5, Section 5.4), such that the purpose format of the scenarios aligns with both the true planning aspirations and executable possibilities of the organisation.

## **6.6 Diagnosis and Mitigation of Problems in Scenario Planning**

Based on the research, in summary, it has been argued that binary, alternative purpose platforms, as defined, apply in scenario planning; and that (1) the purpose implied in the scenario form is required to be congruent with the underlying purpose of the organisation, and (2) attitude to constraint conditions implied in the scenario form is required to be congruent with real external constraint conditions, in order for scenarios to be valid and fit for purpose. Where such congruence exists, the scenario set will be fit-for-purpose and therein to be implementable into real forward strategic decision-making, and therefore the project as a whole will be more likely to be considered valuable. Among the 15 projects studied it is clear that many of them are considered by interviewees as fit-for-purposes successes, particularly as judged by follow-on utility, for example the projects of Bord Bia, Association of Research Libraries, and the World Economic Forum (adaptive purpose), and those of Metropolitan Life, the Arctic Council, and the Columbia Basin Trust (visionary-advocacy purpose). In these cases it is clear that the congruencies defined above apply.

The argument further follows from this that it is possible to use these research findings and analysis as a diagnostic for situations where scenarios misfire. An example of a problematic project of this sort is Nautilus Institute: Peaceful Resolution of the North Korean Nuclear Crisis, where the axes of uncertainty are:

“Form of Crisis” (Contained vs. Escalating) and “Presence of Nuclear Weapons” (Yes vs. No). This leads to a “vision scenario” (Contained Non-nuclear Conflict) and a “dystopic scenario” (Escalating Nuclear Conflict), which is not in itself a problem as noted in Section 6.3.2 above—this is indeed the structure that most visionary-advocacy scenarios manifest, as is the case in the Metropolitan Life Foundation: Live the Future project. However, in contrast to Metropolitan Life Foundation project where, with Government policy support, scenario-makers’ expectation of ability to influence the HIV-Aids “Social Consensus” axis is reasonable, the Nautilus Institute does not appear to have any reason to think it has or could realistically somehow gain influence over either the form of the Korean crisis, or presence-absence of nuclear threat within it. In other words, it has adopted a mode of scenario work that is coherent for an organisation that has significant influencing power over the particular externalities it concerns itself with, but it has effectively none, as corroborated by the interviewee himself (Chapter 4B, Section 4.9.8).

A similar situation applies in Cofisa: Bio-technology Scenarios for the Eastern Cape, where scenarios are constructed on the uncertainty axes: “Development Focus” (Urban vs. Rural) and “Form of Economy” (Knowledge vs. Neo-Industrial). The vision is *Rurbal Balance*, in which Mdantsane becomes a green biotechnology industry leader in African biotechnology within 25 years. The problem is neither Cofisa, nor anyone it could possibly reach out to, even including the South African Government, has sufficient power to achieve influence over (a) urbanisation, one of the most powerful and irrevocable global trends of our time, or (b) biotechnology, a technology beset both with scientific questions and social

concerns, neither of which Cofisa has not the remotest ability to influence let alone drive forward. This is to say, the vision Cofisa proposes is entirely outside of its (or any allied organisation's) ability to achieve. A final example of this problem, among the scenarios studied, is the United Nations (FAO): Agricultural Produce in the Nile Basin project where the preferred outcome scenario is *Joint Effort* (Good Governance x Favourable Trade conditions). However, while a claim to influence the quality of governance was reasonable in projects such as Arctic Council: The Future of Arctic Marine Navigation, where the chief participants were in fact Arctic nation government representatives; or South Africa 2014: Scenarios for 2025, where again the key commissioning body was the South African government itself, in the case of the Nile Basin project there was in fact not even a remote capacity to influence Nile Basin countries' governance, as confirmed by the interviewee.

This problem may be summarised as one of creating visionary-advocacy scenarios for organisations that do not have the capacity to overcome external constraint conditions and therein influence the future in the way the scenario format implies. Scenarios are built *as if* influence over these uncertainties applies, but this is not a valid inference. Formally, in terms of the research and analysis of this dissertation, we may observe that there is lack of congruence between the purpose implied in the scenario format and influence over the constraint conditions faced: the scenarios transgress the capacity-constraint conditions facing the organisation. The result of this is that the scenarios tell "pretty stories" of betterment in areas the organisation cannot influence; therein the process comes across as idealistic, wishful thinking, "Pollyanna handwaving", and credibility of the scenario planning

tool as a whole, particularly among business organisations, suffers accordingly. In terms of the research and analysis presented here, the incorrect scenario purpose mode is used in these projects, with negative consequences for the utility of scenario work in itself or for follow-on use.

A related problem is one of producing visionary-advocacy scenarios for organisations that do not hold any particular agenda of macro-change, nor wish to, and which are then presented with scenarios showing utopia-dystopia outcomes that are not remotely relevant to the real goals of the organisation, and therefore are not implementable *ab initio*. Here the problem may be understood, in terms of the research and analysis presented, as another form of failure to create congruence between the purpose of the organisation and the purpose implied in the scenario mode. Organisations that have, rightly or wrongly, no external change-the-world agenda, are better served by adaptive purpose scenarios which embody the real benefit sought: informing adaptive and creative decision-making in response to changing external macro-conditions the pro's and cons of which are not of direct concern to the organisation.

Although none of the scenarios studied manifest it (and no project is known to the researcher) it is theoretically also possible to include in the argument an error situation where adaptive format scenarios are produced for an organisation that has low capacity constraints—that is real future-influencing power—and aspirations in this regard, which would lead to similar problems of implementation due to the scenario purpose mode choice being incongruent with

either the purpose of the organisation or the external constraint conditions it faces, or both.

In Chapter 5 (Section 5.5) it was reflected that 50% of the scenario projects studied saw effective follow-on implementation into management decision-making, and that it is apparent from the research that none of the projects identified as being problematic in terms of purpose or constraint conditions, as defined above, saw effective implementation, while all of the projects studied that did achieve follow-on implementation are methodologically congruent with the conditions of success in terms of the argument of this dissertation. Therefore it is reasonable (and also consistent with the academic literature, particularly the literature critical of scenario planning as reflected in Chapter 2, Section 2.3) to conclude that unsatisfactory scenario work of the type specified in the research-based argument here is a contributor to the lack of an effective follow-on implementation phase. It is, of course, recognised that there may be many contributors to unsatisfactory scenario-building work in general. Here it is argued that one among such contributors is misalignment of scenario meta-purpose categories with the underlying planning purpose of the organisation or the planning purpose of the scenarios, or with the external constraint conditions that pertain, any or all of which will render scenarios of a type that are unhelpful to the organisation in terms of its real-world intentions, or which overestimate the organisation's ability to act towards the implied scenario intentions, either or both of which will cause the implementation phase of the project to be still-born.

## **6.7 Contribution to Knowledge**

This section summarises the contribution to knowledge proposed by the research and analysis of the dissertation. It is divided into two parts; the first deals with principles in general, the second with particular contributions to scenario planning in Africa.

### **6.7.1 General Principles**

As discussed in Chapter 1, in the sections on Purpose and Motivation of the Study, it is intended that the research make an original contribution to the theoretical and practical domains of management, particularly in improving managers' forward thinking and decision-making via best use of scenario planning. Based on the research presented in this dissertation, the contribution to knowledge is firstly in isolating and verifying two different and opposing meta-categories in scenario work, described here as "adaptive" (future-aligning intent) and "visionary-advocacy" (future-influencing intent), each defined by the primary purpose or intent of the modality. It is shown that adaptive and visionary-advocacy scenario approaches, due to alternative purpose orientations, while both valid in themselves, provide for different benefits from the scenario process—despite sharing many similar concepts and methods and terms of practice (such that the divergent purpose platforms and allied benefits are easy to miss under the weight of apparent process similarity.)

Second, it has been shown that effective use of either purpose platform demands congruence with the larger situational purpose it serves, both in terms of the

planning purpose of the organisation (which commonly reflects the a-priori nature and purpose of the organisation) and the external constraint context that the scenario planning applies to. Specifically, adaptive scenario modality is indicated in situations where future-adaptive intent is the primary organisational intention, and constraints on the organisation's external influence are high; visionary-advocacy modality is indicated where future-influencing intent is the primary organisational intention, and constraints on the organisation's external influence are low. In this, the research and analysis has demonstrated the need for two new steps in scenario project pre-planning: (a) a purpose audit by which an organisation determines its a-priori purpose in adopting and commissioning a new scenario project, in order to choose the scenario purpose framework congruent to its purpose; and (b) a capacity-constraint audit by which the extent of the organisation's power to influence the variables pertaining in or changing its sector (existing or potential new context constraints) is assessed, and the areas of its scope of influence (if any) are verified and justified.

Third, it has been demonstrated that a scenario-planning purpose platform choice demands follow-through at the methodological level. Where relative influence capacity is identified then method, particularly in choosing axes of uncertainty for 2x2 scenario architecture, must be congruent with it. As described in Chapter 5 (Section 5.4), at least one axis of uncertainty must be within the organisation's valid (verified via the capacity-constraint audit) sphere of influence. When proceeding with adaptive purpose, the entire basis of the scenario matrix

uncertainty architecture should be external to the organisation's sphere of influence.

Fourth, the study contributes a diagnostic tool applicable in the investigation of scenario projects that have met with uneven success or failure, where failure can be traced to a lack of awareness or observance of the alternative meta-purpose platforms that pertain in scenario planning, or a misapprehension of the constraint conditions that frame an organisation's actions, either or both of which lead to misalignment of the purpose implied in the scenario method with the broader purpose of the organisation, or with the real-world constraint conditions faced, which in turn leads to low quality of the work and difficulty of follow-on implementation in real-world planning. The research, in demonstrating the need to prioritise both purpose platform and constraint conditions as a basis of selecting between, and applying, different methodological choices in scenario building, shows a route to improving practitioner application, and therein greater management success in productive use of this most important business foresight tool. Therefore the fifth contribution to knowledge proposed via the research and conclusions presented is a pathway to revalidate the place and utility of scenario planning in management understanding, towards establishing a solid base for productive use of the method in real-world management decision-making.

### **6.7.2 Scenario Work in Africa**

In Chapter 1 (Section 1.4) it was remarked that this research project was situated in Africa, and developed through an African business school, for reasons related to the



relative richness of scenario project work in Africa (particularly South Africa) and the potential relevance of conclusions for developing better scenario work on the continent. It remains to draw these conclusions. It is argued this separation of scenario purpose modalities, and maintenance of congruence with organisational planning purpose and external constraint conditions is established as good practice for African scenario building as it would be anywhere in the world. However it may further be observed that in many if not most cases that pertain in Africa, the capacity to influence external drivers of macro-change is often weak (constraint on influence is high). There are many powerful forces in geopolitics, currency flows, energy technology advancement, produce and raw materials market shifts, to name just a few, that impact the continent, and will continue to do so, and over which its organisations and businesses have no influence, or at best weak and serendipitous influence. Determinants of the outcomes of key uncertainties are therefore external and mostly beyond reasonable expectation of internal stakeholder influence, no matter how fervently this influence is exhorted or evangelised, or however passionately the vision of a rosy dawn is painted in a scenario. This is of course not to assert that African scenario situations are different in *type* to any other situation. It is merely to observe that, in global terms, African firms or public-service organisations, or even African governments, are relatively small and relatively constrained in terms of their influence over global forces of macro-change. It is noted in Section 6.8.1 below that Biggs et al (2007) argue that constraint conditions on a scenario-building organisation are correlated to the scale of the exercise—local, national or global—where global scale implies greater constraint. This applies here

in that African visions of a better tomorrow often imply the ability to exert influence at the global level, when there is none, or at the national level, when the forces and finances of the State are weak. A capacity-constraint audit would therefore suggest adaptive mode scenarios are applicable in most African situations—other than possibly at the local level—whereby scenario planning can help managers to creatively and strategically adapt their organisations in a world they do not control; and scenario-building projects should be restricted to this mode unless a very clear case can be made (via a capacity-constraint audit, as determined by the research) as to why an assumption of influence over external macro-change is reasonable, and how this influence may be achieved, at which point visionary-advocacy scenarios become a justifiable and laudable way to proceed.

### **6.8 Directions for Further Research**

This dissertation has diagnosed and proved a nexus of methodological confusion and poor practice in scenario work, which is to be found when purpose platform is not adequately assessed, such that the method used for scenario construction blurs the necessary separation of adaptive and visionary-advocacy intent, with the result that neither is effectively served; or when the modal separation is adequately assessed, but overreaches or otherwise disregards capacity-constraint conditions. However, there remains a body of work to be done to consolidate the implications of this research, as follows:

### **6.8.1 Determining Framework for the Capacity-Constraint Audit**

The capacity-constraint audit is unexplored territory. It is clear what is necessary in concept—a process by which a scenario-building organisation is able to assess not only the most important external drivers of uncertainty it faces (as is currently common is scenario workshops), but also (a) the constraints on it influencing those external driving forces, and (b) its capacity to overcome those constraints. Further research and experimental work is required to assess how this audit should be done; what would be the best process or template for achieving it. Possible early success in this endeavour may come from developing Biggs et al (2007), who note that constraint conditions on a scenario-building organisation are correlated to the scale of the exercise, whether it is local, national or global. In other words the degree of control that stakeholders have over the driving forces of change in a system decreases with increasing scope of the project. International consumer or demographic trends, or legislative-trade agreements are routinely beyond the influence of most organisations, while at the national scale, and particularly the local scale, there is often a greater degree of influence, and sometimes even control over important driving forces. The authors note that an increasing number of scenario studies are "multiscale," in that their storylines are developed at several scales, i.e. global and national scales, which are linked to one another.

### **6.8.2. Integration with Scenario Typology Literature**

In Chapter 2 (Section 2.8) the current state of the debate in scenario typology was discussed. This dissertation lays out a conceptual framework that rests on that

literature, particularly in corroborating “purpose” as a fundamental axis of scenario typology, as is partially indicated in the literature. However it also challenges the typological frameworks that exist, particularly in prioritising purpose and introducing notions of influence capacity and influence constraint, that is, turning the typological focus towards the power of the organisation to act on the external environment as a basis for classification. This comes close to introducing a “political theory” into the scenario typology debate: much work remains however in consolidating this theory, and integrating it with existing typology frameworks where possible, and thereby extending and consolidating the current understanding of scenario typology.

### **6.8.3. Applicability Beyond the 2x2 Matrix Method**

At various points in this study it has been pointed out that the analysis has been confined to scenario studies that use the “2x2 matrix” format. Reasons for this are twofold: first this method, despite criticisms (outlined in Chapter 2, Section 2.3.3.1), is far and away the most common method used in scenario construction; second, maintaining a set of projects that use a common methodology has allowed for valid comparison across projects, and therefore has facilitated the comparative nature of the case study analysis, and comparison between the projects studied by case study and those studies by document analysis and interview. However, it is recognised that other methodologies pertain, and that strong criticisms of the 2x2 method (for example, Curry & Shultz, 2009) are pertinent, and it may become the case that the evolution of alternative scenario-construction methodologies continues to the point

where the dominance of the 2x2 method is eclipsed. It therefore becomes a direction for future research to assess how the implications of the research presented here applies to and improves other forms of scenario construction, and follow-on use, both in theory and in practice.

\*\*\*

University of Cape Town

## Appendix 1. Interview Schedule

The schedule below records the dates of primary and significant follow-up interviews (where applicable) that were conducted by the researcher, following scenario project document study and selection, in preparing this dissertation. Various ongoing short post-interview calls for additions and clarifications are not recorded.

<b>Eco-Resorts of the Future</b> Date of Interview: April 8, 2010	<b>Interviewee:</b> Francesca Birks, Arup Foresight, New York: Co-Lead Facilitator of the project.
<b>Eco-Resorts of the Future</b> Date of Interview: February 10, 2011	<b>Interviewee:</b> Francesca Birks, Arup Foresight, New York: Co-Lead Facilitator of the project.
<b>Live the Future</b> Date of Interview: March 22, 2011	<b>Interviewee:</b> Desiree Daniels, (ex) Project Director, Metropolitan Life Foundation, Cape Town: Chief Coordinator of the project.
<b>Live the Future</b> Date of Interview: April 25, 2012	<b>Interviewee:</b> Dr. Barbara Heinzen, New York: Lead Facilitator of the project.
<b>Columbia Basin Trust</b> Date of Interview: March 12, 2012	<b>Interviewee:</b> Juliet Fox, Future IQ Partners / Innovative Leadership, Minneapolis: Lead Facilitator of the project.
<b>Columbia Basin Trust</b> Date of Interview: June 13, 2012	<b>Interviewee:</b> Juliet Fox, Future IQ Partners / Innovative Leadership, Minneapolis: Lead Facilitator of the project
<b>The Future of Arctic Marine Navigation</b> Date of Interview: March 13, 2012	<b>Interviewee:</b> Dr. Eric Smith, Senior Practitioner, Global Business Network (a Member of the Monitor Group), San Francisco: Lead facilitator of the project.

<b>Association of Research Libraries (U.S.)</b> Date of Interview: March 15, 2012	<b>Interviewee:</b> Karla Streib, (ex) Assistant Director for Transforming Research Libraries, Association of Research Libraries, Washington D.C.: Client Representative for the project.
<b>Trade and Agriculture in Southern Africa</b> Date of Interview: March 16, 2012	<b>Interviewee:</b> Tanja Hichert, Institute for Futures Research, Cape Town. Co-lead Facilitator for the project.
<b>South Africa Presidency Scenarios 2014</b> Date of Interview: March 19, 2012	<b>Interviewee:</b> Dr. Harry Dugmore, Rhodes University, Grahamstown: Coordinator and Lead Facilitator of the project.
<b>South Africa Presidency Scenarios 2014</b> Date of Interview: July 9, 2012	<b>Interviewee:</b> Dr. Harry Dugmore, Rhodes University, Grahamstown: Coordinator and Lead Facilitator of the project.
<b>Ecotourism in Milne Bay, Papua New Guinea</b> Date of Interview: March 21, 2012	<b>Interviewee:</b> Dr. Erin Bohensky, Research Scientist, Ecosystem Sciences Social & Economic Science Programme, CSIRO, Cairns, Australia. Co-lead Facilitator of the project.
<b>Public Library Network, New South Wales</b> Date of Interview: March 23, 2012	<b>Interviewee:</b> Oliver Freeman, Director, Neville Freeman Agency, Sydney: Lead Facilitator of the project.
<b>North Korean Nuclear Crisis</b> Date of Interview: March 26, 2012	<b>Interviewee:</b> Doug Randall, Managing Partner, Monitor 360, San Francisco: Lead Facilitator of the project.
<b>Biotechnology Scenarios for the Eastern Cape</b> Date of Interview: March 28, 2012	<b>Interviewee:</b> Dr. Bob Day, Founder and Co-Director, Non-Zero-Sum Development, Pretoria. Lead Facilitator of the project.
<b>Irish Food Board: Bord Bia</b> Date of Interview: April 27, 2012	<b>Interviewee:</b> Rachel Lloyd, (ex) Associate Director, Henley Centre Headlight Vision, London: Lead Facilitator of the Project.

<b>United Parcel Service: Migration to Open Source Systems</b> Date of Interview: April 30, 2012	<b>Interviewee:</b> Edward M. Rogers, Global Strategy Manager, UPS Corporate Strategy Group, Atlanta: Convenor and Client Liaison for the project.
<b>Agricultural Produce in the Nile Basin</b> Date of Interview: April 30, 2012	<b>Interviewee:</b> Dr. Peter Schütte, Schütte & Company, Amsterdam. Lead Facilitator of the project.
<b>World Economic Forum: Future of the Global Financial System</b> Date of Interview: June 13, 2012	<b>Interviewee:</b> Nicholas Davis, Associate Director and Deputy-Head of Strategic Foresight, World Economic Forum, Geneva. Lead Facilitator of the project.



## Bibliography

Ackoff, R. (1981). *Creating the Corporate Future: Plan or be Planned For*. New York: John Wiley & Sons.

Ackoff, R. (1999a). Alternative Types of Planning. In *Ackoff's Best* (pp. 104-114). New York: John Wiley & Sons.

Ackoff, R. (1999b). Controlling the Future: Forecasts, Assumptions, Scenarios, and Projections. *Presearch: Global Business Network*, 3(1).

Ackoff, R. (2000). Creating a Competitive Strategic Advantage. *Journal of Innovative Management*, 6(2), 25-44.

AC-UNU Millennium Project Futures Matrix (Continuously Updated List of Worldwide Scenario Projects). <http://www.acunu.org/millennium/information.html>. Viewed January, 2011.

Alsan, A. & Oner, M. (2003). An Integrated View of Foresight: Integrated Foresight Management Model. *Foresight: The Journal of Futures Studies, Strategic Thinking and Policy*, 5(2), 33-45.

Alcamo, J., Kreilemann, G., & Leeman, R. (1998). *Global Change Scenarios of the 21st Century*. Oxford: Pergamon/Elsevier Science.

Alcamo, J., Kreileman, E., Bollen, J., van den Born, G., Gerlagh, R., Krol, ... deVries, H. (1996). Baseline Scenarios of Global Environmental Change. *Global Environmental Change*, 6, 261-303.

Aligica, P. D. (2005). Scenarios and the Growth of Knowledge: Notes on the Epistemic Element in Scenario Building. *Technological Forecasting and Social Change*, 72, 815-824.

Alvesson, M., & Sköldbberg, K. (2000). *Reflexive Methodology: New Vistas for Qualitative Research*. London: Sage Publications.

Alvesson, M. (2003). Beyond Neopositivists, Romantics, and Localists: A Reflexive Approach to Interviews in Organizational Research. *Academy of Management Review*, 28(1), 13-33.

Anderson, J. (1997). Technology Foresight for Competitive Advantage. *Long Range Planning*, 30(5), 665-677.

Arctic Marine Shipping Assessment of the Arctic Council's Protection of the Arctic Marine Environment Working Group. (2008). *The Future of Arctic Marine Navigation in Mid-Century: Scenario Narratives Report*. San Francisco, CA, USA.

- Armstrong, S.J. (1985). *Long-range Forecasting*. New York: John Wiley & Sons.
- Armstrong, S.J. (ed) (2001). *Principles of Forecasting: A Handbook for Researchers and Practitioners*. Norwell, MA: Kluwer Academic Publishers.
- Arup Foresight (2008a). *Eco-Resorts of the Future, Tanzania*: London: Author.
- Arup Foresight (2008b). *Eco-Resorts of the Future, Tanzania*: Delegate Pack. London: Author.
- Ascher, W. (1978). *Forecasting: An Appraisal for Policy-Makers and Planners*. Baltimore: John Hopkins University Press.
- Ashby, W.R. (1983). Self-regulation and Requisite Variety. In F. Emery (Ed.), *Systems Thinking*. New York: Penguin.
- Association of Research Libraries (2010) *The ARL 2030 Scenarios: A User's Guide for Research Libraries*. Washington, D.C., USA: Author.
- Astley, W. (1985). Administrative Science as Socially Constructed Truth. *Administrative Science Quarterly*, 30, 497-513.
- Banhold, H., & Lindgren, M. (2003). *Scenario Planning: The Link Between Future and Strategy*. Basingstoke: Palgrave Macmillan.
- Barker, D. (1995). Technology Foresight Using Roadmaps. *Long Range Planning*, 28(2), 21-28.
- Barker, J. (1992). *Future Edge: Discovering the New Paradigms of Success*. New York: William Morrow.
- Barnes, J. (2001). *A Guide to Business Continuity Planning*. New York: John Wiley & Sons.
- Barnett, S. (1994). Futures, Probable and Plausible. *Anthropology Newsletter*, 35(7), 52.
- Batchelor, R. (2009). Forecasting Sharp Changes. *Foresight: The International Journal of Applied Forecasting*, 13, 7-12.
- Bazerman, M. & Watkins, M. (2004). *Predictable Surprises: The Disasters You Should Have Seen Coming, and How to Prevent Them*. Boston: Harvard Business School Press.
- Becker, H. (1982). Constructing and Using Scenarios: An Aid to Strategic Planning and Decision Making. *World Future Society Bulletin*, 16(5), 13-24.
- Becker, H. (1983). Scenarios: A Tool of Growing Importance to Policy Analysts in Government and Industry. *Technology Forecasting and Social Change*, 23, 95-120.

- Becker, H. (1989). Developing and Using Scenarios—Assisting Business Decisions. *Journal of Business & Industrial Marketing*, 4(1), 61-70.
- Beery, J. et al. (Eds.) (1994). The Mont Fleur Scenarios: What Will South Africa be like in 2002? *Global Business Network: Deeper News*, 7(1), 1-21.
- Bell, J. (2010). *Doing Your Research Project*. Maidenhead: Open University Press.
- Bell, W. (1996). *Foundations of Futures Studies: Human Science for a New Era: History, Purposes, and Knowledge. Volumes I and II*. New Brunswick, NJ: Transaction.
- Bell, W. (2000). An Overview of Futures Studies. In R.A. Slaughter (Ed.), *The Knowledge Base of Futures Studies*, 1(1). Indooroopilly, Queensland: Futures Study Centre.
- Bell, W. (2012) *Memories of the Future*. New Brunswick: Transaction Publishers.
- Beinhocker, E. (1999). Robust Adaptive Strategies. *Sloan Management Review*, 40(3), 95-106.
- Bennett, E. et al. (2003). Why Global Scenarios need Ecology. *Frontiers in Ecology and the Environment*, 6, 322-329.
- Berger, P. & Luckmann, T. (1967). *The Social Construction of Reality*. London: Allen Lane.
- Berkhout, F., & Hertin, J. (2000). Socio-economic Futures in Climate Change Impact Assessment: Using Scenarios as "Learning Machines. *Global Environmental Change*, 10, 165-168.
- Berkhout, F. & Hertin, J. (2002). Foresight Futures Scenarios: Developing and Applying a Participative Strategic Planning Tool. *Greener Management International*, 37, 37-52.
- Bezold, C. (2009a). Aspirational Futures. *Journal of Futures Studies*, 13(4), 81-90.
- Bezold, C. (2009b). Jim Dator's Alternative Futures and the Path to IAF's Aspirational Futures. *Journal of Futures Studies*, 14(2), 123-134.
- Biggs, R. et al. (2007). Linking Futures Across Scales: A Dialog on Multiscale Scenarios. *Ecology and Society*, 12(1), 17.
- Biggs, R. et al. (2010). Preparing for the Future: Teaching Scenario Planning at the Graduate Level. *Ecological Environment* 8(5), 267–273.
- Bishop, P., & Hines, A. (2006). *Thinking about the Future: Guidelines for Strategic Foresight*. Social Technologies, Washington, DC
- Bishop, P., Hines, A., & Collins, T. (2007). The Current State of Scenario Development: an Overview of Techniques. *Foresight* 9(1), 5-25. doi:10.1108/14636680710727516

- Blass, E., Jasman, A., & Shelley, S. (2010). Visioning 2035: Scenarios for the Future of the UK Higher Education Sector. *Futures*, 42, 445-453.
- Blass, E., Thornton, M., & Rawlings, B. (2011). Future Scenarios for a Depressed Region of England: The Role of Education in Creating Alternative Futures. *Foresight*, 13(6), 3-17.
- Bohensky, E., Reyers, B., & van Jaarsveld, A. (2006). Future Ecosystem Services in a Southern African River Basin: a Scenario-Planning Approach to Uncertainty. *Conservation Biology*, 20(4), 1051-1061.
- Bohensky, E., Butler, J., & Mitchell, D. (2011). Scenarios for Knowledge Integration: Exploring Ecotourism: Futures in Milne Bay, Papua New Guinea. *Journal of Marine Biology*, 2011, 1-11. doi:10.1155/2011/504651
- Bonnett, T., & Olson, R. (1994). Four Scenarios of State Government Services and Regulation in the year 2010. *Planning Review*, 22(4), 26-33.
- Bood, R., & Postma, T. (1997). Strategic Learning with Scenarios. *European Management Journal*, 15[6], 633-647.
- Borroughs, M., & Thomas, C. (1992). Alternative Scenarios for the Defense Industry after 1995. *Strategy & Leadership*, 20(3), 24-29.
- Borjeson, L. et al. (2006). Scenario Types and Techniques: Towards a User's Guide. *Futures*, 38(7), 723-739.
- Boucher, W. (1985). Scenarios and Scenario Writing. In J. Mendell, *Nonextrapolative Methods in Business Forecasting* (pp. 47-60). Westport, CT: Quorum Books.
- Bradfield, R. (2004). What We Know and What We Believe: Lessons from Cognitive Psychology. *Development*, 47(4), 35-42.
- Bradfield, R. et al. (2005). The Origins and Evolution of Scenario Techniques in Long Range Business Planning. *Futures*, 37, 795-812.
- Brand, S. & Schwartz, P. (1989). *Decades of Restructuring: The 1989 GBN Scenario Book*. Emeryville, CA: Global Business Network.
- Brown, A. (1998). Ten Ways Futurists Can Avoid Being Destroyed. *Futures Research Quarterly*, 15(2), 7-13.
- Bruner, J. (1990). *Acts of Meaning*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1991). The Narrative Construction of Reality. *Critical Inquiry*, 18, 1-21.
- Bunn, D., & Salo, A. (1993). Forecasting with Scenarios. *European Journal of Operational Research*, 68, 291-303.

- Burt, G. & van der Heijden, K. (2003). First Steps: Towards Purposeful Activities in Scenario Thinking and Future Studies. *Futures*, 35, 1011-1026.
- Burt, G. (2003). Epigenetic Change: New from the Seeds of the Old. *Journal of Strategic Change*, 12, 381-393.
- Burt, G. et al. (2006). The Role of Scenario Planning in Exploring the Environment in View of the Limitations of PEST and its Derivatives. *International Studies of Management and Organization*, 36(2), 52-57.
- Burt G. (2010). Revisiting and Extending our Understanding of Pierre Wack's the Gentle Art of Re-perceiving. *Technological Forecasting & Social Change*, 77, 1476–1484.
- Butler, J., Bohensky, E., Skewes, T., & Mitchell, D. (2008). Sustainable Futures for Milne Bay Workshop Report.
- Cairns, G. et al. (2004). Exploring e-Government Futures through the Application of Scenario Planning. *Technological Forecasting and Social Change*, 71, 217-238.
- Cairns, G., et al. (2006). Enhancing Foresight between Multiple Agencies: Issues in the Use of Scenario Thinking to Overcome Fragmentation. *Futures*, 38, 1010–1025.
- Cariola, M., & Rolfo, S. (2004) Evolution in the Rationales of Foresight in Europe. *Futures*, 36(10), 1063-75.
- Charmaz, K. (2001). Qualitative Interviewing and Grounded Theory Analysis. In J.F. Gubrium & J.A. Holstein (Eds.) *Handbook of Interview Research* (pp. 675-694). Thousand Oaks, CA: Sage Publications.
- Chen, H. (1990). *Theory Driven Evaluations*. Thousand Oaks, CA: Sage.
- Chen, H. (1996). A Comprehensive Typology for Program Evaluation. *American Journal of Evaluation*, 17, 121-130.
- Chermack, T.J. (2002). The Mandate for Theory in Scenario Planning. *Futures Research Quarterly*, 18(2), 25-28.
- Chermack, T.J. (2003). A Methodology for Assessing Performance-based Scenario Planning. *Journal of Leadership and Organizational Studies*, 10(2), 55-63.
- Chermack, T.J. (2004). Improving Decision-making with Scenario Planning. *Futures*, 36, 295-309.
- Chermack, T.J. (2004). A Theoretical Model of Scenario Planning. *Human Resource Development Review*, 3(4), 301-325. doi: 10.1177/1534484304270637.
- Chermack, T.J. (2005). Studying Scenario Planning: Theory, Research Suggestions, and Hypotheses. *Technological Forecasting & Social Change*, 72, 59–73.

- Chermack, T.J. (2011). *Scenario Planning in Organizations: How to Create, Use, and Assess Scenarios*. San Francisco: Berrett-Koehler.
- Chermack, T. J., Lynham, S.A. & Ruona, W. (2001). A Review of Scenario Planning Literature. *Futures Research Quarterly*, 17(2), 7-32.
- Chermack, T.J., & van der Merwe, L. (2003). The Role of Constructivist Learning in Scenario Planning. *Futures*, 35, 445-460.
- Christensen, C.M., Anthony, S.D., & Roth, E.A. (2004). *Seeing What's Next: Using the Theories of Innovation to Predict Industry Change*. Boston: HBS Press.
- Clar, G.N. (2003). Forecasting Options for the Future: to Gain Foresight to Select and Shape Them. *Journal of Forecasting*, 22(2-3), 83-91.
- Clark, D.N. (1997). Strategic Management Tool Usage: a Comparative Study. *Strategic Change*, 6(7), 417-427.
- Clark, D., & Scott, J. (1995). Strategic Level MS/OR Tool Usage in the United Kingdom: An Empirical Survey. *Journal of the Operational Research Society*, 46(9), 1041-1051.
- Clarke, I.F. (1979). *The Pattern of Expectation: 1644-2001*. London: Jonathan Cape.
- Coates, J.F. (1985). Foresight in Federal Government Policymaking. *Futures Research Quarterly*, 1, 29-53.
- Coates, J.F. (1985). Scenarios Part Two: Alternative Futures. In J. Mendell (Ed.) *Nonextrapolative Methods in Business Forecasting* (pp. 21-46). Westport: Quorum.
- Coates, J.F. (1986). *Issues Management: How You Can Plan, Organize and Manage for the Future*. Mt Airy, MD: Lomond.
- Coates, J. F. (2000). Scenario Planning. *Technological Forecasting and Social Change*, 65(1), 115-123.
- Collier, J. & Fuller, T. (2005). Corporations, Ethics and Global Futures. *Futures*, 37, 111-116.
- Collins, J. & Parra, J. (1996). Building Your Company's Vision. *Harvard Business Review*, 5, 65-77.
- Cooper, R.N., & Layard, R. (Eds). (2003). *What the Future Holds: Insights from Social Science*. Cambridge: MIT Press.
- Columbia Basin Trust. (2010). *Shaping Our Future Together: 2010 Columbia Basin Symposium, Scenario Planning Summary Report*. Revelstoke, B.C.: Author.
- Conwan, J., Eidinow, E., & Likely, L. (Eds.). (1998). Destino Colombia, a Scenario-Planning Process for the New Millenium. *Deeper News*, 9, 3-31.

- Conway, M. (2005). Strategic Planning Revisited: A Futures Perspective. In C. Wagner (Ed.) *Foresight, Strategy and Innovation: Towards a Wiser Future*. Bethesda, MD: World Future Society.
- Coplin, W.D. & O'Leary, M. (1992). 1992-97 World Political Risk Forecast. *Planning Review*, 20(2), 24-31.
- Cornish, E. (2003). *Futuring: The Exploration of the Future*. Bethesda, MD: World Future Society.
- Cornelius, P., Van de Putte, A., & Romani, M. (2005). Three Decades of Scenario Planning in Shell. *California Management Review*, 48(1), 92-109.
- Costanzo, L., & MacKay, B. (2009). *Handbook of Research on Strategy and Foresight*. Cheltenham: Edward Elgar Publishing.
- Courtney, H. (2001). *20/20 Foresight: Crafting Strategy in an Uncertain World*. Boston: Harvard Business School Press.
- Coyle, R.G., Crawshaw, R., & Sutton, L. (1994). Futures Assessment by Field Anomaly Relaxation. *Futures*, 26(1), 25-43.
- Creswell, J.W. (1998). *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W. (2002). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage Publications.
- Cuhls, K. (2003). From Forecasting to Foresight Processes: New Participative Foresight Activities in Germany. *Journal of Forecasting*, 22(2-3), 93-111.
- Cunliffe, A., Luhman, J., & Boje, D. (2004). Narrative Temporality: Implications for Organizational Research. *Organization Studies*, 25, 261-286.
- Cupchik G. (2001). Constructivist Realism: An Ontology That Encompasses Positivist and Constructivist Approaches to the Social Sciences Forum. *Quality Social Research*, 2(1), Art.7.
- Curry, A. (2009). From Foresight to Insight: Using Scenarios Well. *Journal of Futures Studies*, 13(3), 119-122.
- Curry, A., & Schultz, W. (2009). Roads Less Travelled: Different Methods, Different Futures. *Journal of Futures Studies*, 13(4), 35-60.
- Daft, R.L., & Weick, K.E. (1984). Toward a Model of Organizations as Interpretation Systems. *Academy of Management Review*, 9(2), 284-295.

- Dane, E., & Pratt, M. (2007). Exploring Intuition and its Role in Managerial Decision-Making. *The Academy of Management Review*, 32(1), 33-54.
- Dator, J. (2007). Governing the Futures: Dream or Survival Societies? *Journal of Futures Studies*, 11(4), 1-14.
- Dator, J. (2008). Futures, Volumes One and Two: Then and Now. Symposium on the 40th Anniversary of the Journal Futures. *Futures*, 40(1), 893-926.
- Dator, J. (2009a). The Unholy Trinity, Plus One. *Journal of Futures Studies*, 13(3), 33-48.
- Dator, J. (2009b). Alternative Futures at the Mānoa School. *Journal of Futures Studies*, 14(2), 1-18.
- Dator, J. (2009c). Zero Zone Theory and Futures Studies: Two Ridiculous Ideas? *Journal of Futures Studies*, 14(2), 135-138.
- Davis-Floyd, R. (1998). Storying Corporate Futures: the Shell Scenarios. In G. Marcus (Ed.) *Corporate Futures* (pp 141-176). Chicago: University Of Chicago Press.
- Davis, G. (1998). *Creating Scenarios for your Company's Future*. Shell International. Retrieved from: <http://www.shell.com/static/media-en/downloads/50334Englishpdf3.pdf>. Viewed June 2010.
- De Geus, A. (1997). *The Living Company*. Boston: Longview Publishing.
- De Geus, A. (1988). Planning as Learning. *Harvard Business Review*, 66 (2), 70-74.
- De Jouvenel, B. (1967). *The Art of Conjecture*. New York: Basic Books.
- Denzin, N. K. & Lincoln, Y. S. (1998). Introduction: Entering the Field of Qualitative Research. In N.K. Denzin & Y.S. Lincoln (Eds.), *Strategies of Qualitative Inquiry*, (pp. 1-34). Thousand Oaks, CA: Sage Publications.
- Dewar, J. (2002). *Assumption-Based Planning: A Tool for Reducing Avoidable Surprises* (RAND Studies in Policy Analysis). Cambridge: Cambridge University Press.
- Dey, I. (1993). *Qualitative Data Analysis*. London: Routledge.
- Desmerais, E. (2000). The Art of Scenario Planning: a Review of Two Books. *Journal of Business & Economic Studies*, 6(1), 81-85.
- Draper, P., Kiratu, S., & Hichert, T. (2009). *How Might Agriculture Develop in Southern Africa? Making Sense of Complexity*. Harare, Zimbabwe: Winnipeg International Institute for Sustainable Development.
- Dreborg, K. (2004). *Scenarios and Structural Uncertainty*. Stockholm: Royal Institute of Technology, Department of Infrastructure.



- Drucker, P. (1992). *Managing for the Future*. Oxford: Butterworth-Heinemann.
- Ducot, C., & Lubben, G.J. (1980). A Typology for Scenarios. *Futures* 12(1), 51-59.
- Duncan, N. (1992). Why Can't We Predict? *New Scientist*, 136(1841), 47-49.
- Duncan, N. & Wack, P. (1994). Scenarios Designed to Improve Decision-Making. *Planning Review*, 22(4), 18-27.
- Eisenhardt, K.M. (1989). Building Theories from Case Study Research. *Academy of Management Review*, 14(4), 532-550. doi:10.5465/AMR.1989.4308385
- Elkington, J., & Trisoglio, A. (1996). Developing Realistic Scenarios for the Environment: Lessons Learnt from Brent Spar. *Long Range Planning*, 29(6), 762-769.
- Esterhuysen, W. (1992). Scenarios for South Africa—Instability and Violence or Negotiated Transition? *Long Range Planning*, 25(3), 21-26.
- Eto, H. (2003). The Suitability of Technology Forecasting/foresight Methods for Decision Systems and Strategy—a Japanese View. *Technological Forecasting and Social Change*, 70(3), 231-249.
- European Environment Agency (EEA). (2009). *Looking Back on Looking Forward: a Review of Evaluative Scenario Literature*. Copenhagen: EEA.
- Fahey, L. (1998a). Industry Scenarios. In L. Fahey and R.M. Randall (Eds.), *Learning from the Future: Competitive Foresight Scenarios*, (pp. 189-222). New York: John Wiley & Sons.
- Fahey, L. (1998b). Competitor Scenarios: Projecting a Rival's Marketplace Strategy, In L. Fahey and R.M. Randall (Eds.), *Learning from the Future: Competitive Foresight Scenarios*, (pp. 223-245). New York: John Wiley & Sons.
- Fink, A., & Schlake, O. (2000). Scenario Management: An Approach for Strategic Foresight. *Competitive Intelligence Review*, 11(1), 37-45.
- Fink, A., Marr, B., Siebe, A., & Kuhle, J.P. (2005). The Future Scorecard: Combining External and Internal Scenarios to Create Strategic Foresight. *Management Decision*, 43(3), 360-381.
- Fiol, C.M., & Lyles, M. (1985). Organizational Learning. *Academy of Management Review*, 10(4), 803-813.
- Fisher, J. et. al. (2009). Development of a Process to Turn Plausible Scenarios into On-Ground Action, *The International Journal of Environmental, Cultural, Economic & Social Sustainability*, 5(2), 295-304.

- Flagg, B.N. (1990). *Formative Evaluation for Educational Technologies*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Flood, R.L. (1999). *Rethinking the Fifth Discipline: Learning within the Unknowable*. London: Routledge.
- Foo, C.T. (2003). Forecastability, Chaos and Foresight. *Foresight: The Journal of Futures Studies, Strategic Thinking and Policy*, 5(5) 22-33.
- Food and Agriculture Organization of the United Nations. (2009). *Demand Scenarios for Agricultural Produce in the Nile Basin for 2030*, Entebbe, Uganda: Author.
- Fontela, E. (2000). Forefront: Bridging the Gap between Scenarios and Models. *Foresight* 2(1), 10-14
- Fourie, P. (2007). The Future of AIDS in Africa: Lessons from Two Scenario Projects. *African Journal of AIDS Research*, 6(2), 97-107.
- Fowles, J. (1978). (Ed.) *Handbook of Futures Research*, Westport: Greenwood Press.
- Foxall, G.R. (1995). Science and Interpretation in Consumer Research: a Radical Behaviourist Perspective. *European Journal of Marketing*, 29(9), 3-99.
- Freeman, O., & Pattinson, H. (2010). Exploring Client Scenarios Associated with Scenario Planning. *Futures*, 42, 304–312.
- Fuld, L. (2003). Be Prepared. *Harvard Business Review*, 5, 20-21.
- Fuller, T., & Tilley, F. (2005). Corporate Ethical Futures. *Futures*, 37, 183-197.
- Galer, G., & van der Heijden, K. (1992). How Planners Create Organisational Learning. *Marketing Intelligence and Planning*, 10(6), 5-12.
- Galer, G. (2004). Scenarios of Change in South Africa. *The Round Table*, 93(375), 369-383.
- Galer, G. (2004). Preparing the Ground? Scenarios and Political Change in South Africa. *Development*, 47, 26-34.
- Gallopin, G., Hammond, A., Raskin, P., & Swart, R. (1997). *Branch Points: Global Scenarios and Human Choice*. Stockholm: Stockholm Environment Institute.
- Gallopin, G., & Raskin, P. (1998). Global Scenarios and Sustainability. *Environment*, 40(6), 26-31.
- Galt, M. et al. (1997). *IDON Scenario Thinking. How to Navigate Uncertainty of Unknown Future*. Pitlochry: Thinking Resources.

Galtung, J., & Sohail, I. (Eds.). (1997). *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change*. Westport, CT: Praeger.

Gary, J. (2009). Foresight Styles Assessment: Testing a New Tool for Consulting Futurists. *Journal of Futures Studies*, 14(1), 1-26.

Gary, J. (2011). Toward a New Macrohistory: An Extension to Sardar's 'Postnormal Times'. *Futures*, 43(1), 48-51.

Gausemeier, J., Fink, A. & Schlake, O. (1998). Scenario Management: an Approach to Develop Future Potentials. *Technological Forecasting and Social Change*, 59, 111-130.

Geertz, C. (1999). Thick Description: Toward an Interpretive Theory of Culture. In A. Bryman and R. Burgess (Eds.) *Qualitative Research*, vol. III (pp. 346-368). London: Sage Publications.

Georgantzas, N. C. & Acar, W. (1995). *Scenario-driven Planning: Learning to Manage Strategic Uncertainty*. West Port, CT: Quorum Books.

Georghiou, L. (1996). The UK Technology Foresight Programme. *Futures*, 28(4), 359-377.

Georghiou, L., Harper, J.C., Keenan, M., Miles, I. & Popper, R. (Eds.). (2008). *The Handbook of Technology Foresight*. Northampton, MA: Edward Elgar.

Ghamari-Tabrizi, S. (2005). *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War*. Boston: Harvard University Press.

Ginsberg, A., & Venkatraman, N. (1985). Contingency Perspectives of Organizational Strategy: a Critical Review of the Empirical Research. *The Academy of Management Review*, 10(3), 421-435.

Gintera, P., & Duncanb, W.J. (1990). Macroenvironmental Analysis for Strategic Management. *Long Range Planning*, 23(6), 91-100.

Glaser, B.G., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies of Qualitative Research*. London: Wiedenfeld and Nicholson.

Glaser, B.G. (1978). *Theoretical Sensitivity*. Mill Valley, CA: Sociology Press.

Glaser, B.G. (2001). *The Grounded Theory Perspective: Conceptualization Contrasted with Description*. Mill Valley, CA: Sociology Press.

Gleick, J. (1987). *Chaos: Making a New Science*. New York: Viking Press.

Glenn, J., & Gordon, T. (1999a). Forethought: The World in 2050: A Normative Scenario. *Foresight*, 1, 453-465.

- Glenn, J., & Gordon, T. (1999b). The Millennium Project: Issues and Opportunities for the Future. *Technological Forecasting and Social Change*, 61, 97-208.
- Glenn, J. & Gordon, T. (2009). Futures Research Methodology. *Millennium Project (CD-ROM, Version 3.0)*, Chapter 13.
- Global Business Network. (1995). *The Logic of Change: 1995 GBN Scenario Book*. Global Business Network, Emoryville, CA: Author.
- Godet, M. (1986). *Scenarios and Strategic Management*. London: Butterworth-Heinemann.
- Godet, M. (1990). Integration of Scenarios and Strategic Management: Using Relevant, Consistent, and Likely Scenarios. *Futures*, 22(7), 730-739.
- Godet, M. (1994). *From Anticipation to Action: A Handbook of Strategic Prospective*, Paris: UNESCO.
- Godet, M. (1998). Internal Motivation and External Strategy: The Same Challenge! *Long Range Planning*, 31(2), 319-324.
- Godet, M. (2000). The Art of Scenarios and Strategic Planning: Tools and Pitfalls. *Technological Forecasting and Social Change*, 65, 3-22.
- Godet, M. (2001). *Creating Futures. Scenario Planning as a Strategic Management Tool*. Washington DC: Brookings Institution.
- Godet, M., Bourse, F., Chaupy, P., & Menant, I. (1991). *Futures Studies: A Tool-Box for Problem Solving*. Paris: UNESCO.
- Godet, M., Chapay, P., & Comyn, G. (1994). Global Scenarios: Geopolitical and Economical Context to the Year 2000. *Futures*, 26, 275-288.
- Godet, M., & Roubelat, F. (1996). Creating the Future: The Use and Misuse of Scenarios. *Long Range Planning*, 29 (2) 164-171.
- Godet, M., Monti, R., Meunier, F., & Roubelat, F. (2003). A Toolbox for Scenario Planning. In J.C. Glenn (Ed.) *Futures Research Methodology (2.0)*. Washington, DC: AC/UNU Millennium Project.
- Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), 597-607.
- Goodwin, P., & Wright, G. (2001). Enhancing Strategy Evaluation in Scenario Planning: a Role for Decision Analysis. *Journal of Management Studies*, 38(1), 1-16.
- Gordon, A. (2009). *Future Savvy: Quality in Foresight*. New York: American Management Association Press.

- Gordon, A. (2010). A DEFT Approach to Trend-based Foresight. *Foresight: The International Journal of Applied Forecasting*, 17, 13-18.
- Gordon, A. (2010). The Boundaries of Quantitative Forecasting Methods: Respecting the Limits of Determinism, *Foresight: The International Journal of Applied Forecasting*, 19, 9-15.
- Gordon, A. (2011). The Uses and Limits of Visionary Scenarios: Learning from the African Experience. *Foresight: The Journal of Futures studies, Strategic Thinking and Policy*, 13(4), 64–81. doi: 10.1108/14636681111153977
- Gordon, T. (2003a). Trend Impact Analysis. In J.C. Glenn (Ed.) *Futures Research Methodology (2.0)*. Washington, DC: AC/UNU Millennium Project.
- Gordon, T. (2003b). Interactive Scenarios. In J.C. Glenn (Ed.) *Futures Research Methodology (2.0)*. Washington, DC: AC/UNU Millennium Project.
- Greenstein, S. (2005). The Anatomy of Foresight Traps. *IEEE Micro*, 25(3) 10-12.
- Grinyer, P., Mayes, D., & McKiernan, P. (1989). *Sharpbenders: The Secrets of Unleashing Corporate Potential*. Backwell: Oxford.
- Gubrium, J. F., & Holstein, J. A. (2000). Analyzing Interpretive Practice. In N.K.Denzin & Y.S. Lincoln (Eds.) *Handbook of Qualitative Research, 2nd Ed.* (pp. 487-508). Thousand Oaks, CA: Sage Publications.
- Guba, E. G. & Lincoln, Y. S. (1998). Competing Paradigms in Qualitative Research. In N.K.Denzin & Y.S. Lincoln (Eds.) *The Landscape of Qualitative Research* (pp. 195-219). Thousand Oaks, CA: Sage Publications.
- Habegger, B. (2009). 5th Zurich Roundtable on Comprehensive Risk Analysis and Management: Strategic Foresight and Scenario Planning Crisis and Risk Network (CRN). *Center for Security Studies*. www.crn.ethz.ch. Viewed July 2012.
- Hadfield, L. (2005). Hindsight and the Delusion of Control. *Foresight: The Journal of Futures Studies, Strategic Thinking and Policy*, 7(4) 3-7.
- Hadridge, P. (2008). Thinking about the Future: Guidelines for Strategic Foresight. *Foresight*, 10(1) 79–80.
- Hadfield, P. D. (1991). Corporate Strategies for a Changing Environment. *Utilities Policy*, October, 381-386.
- Hamel, G., & Prahalad, C.K. (1994a). *Competing for the Future*. Boston, MA: Harvard Business School Press.
- Hamel, G., & Prahalad, C.K. (1994b). Competing for the Future. *Harvard Business Review*, 4, 104-113.

- Hamel, G., & Prahalad, C.K. (1994c). Seeing the Future First. *Fortune*, 130(5), 64-68.
- Hansen, J. (2006). Training Design: Scenarios of the Future. *Advances in Developing Human Resources*, 8(4), 492-499 doi: 10.1177/1523422306292999
- Harman, W. (1976). *An Incomplete Guide to the Future*. San Francisco: San Francisco Book Company.
- Harries, C. (2003). Correspondence to What? Coherence to What? What is Good Scenario-based Planning? *Technological Forecasting and Social Change*, 70(8), 797-817.
- Harper, S. (2001). *The Forward-Focused Organisation*. New York: Amacom.
- Hayward, P. (2003). Resolving the Moral Impediment to Foresight Action. *Foresight*, 5, 4-10.
- Hayward, P. (2004a). Facilitating Foresight: Where the Foresight Function is Placed in Organisations. *Foresight*, 6(1), 19-30.
- Hayward, P.C. (2004b). Futures Studies as a Catalyst for Change. *Futures*, 36, 611-616.
- Hayward, P.C. (2008). Pathways to Integral Perspectives. *Futures*, 40(2), 109-119.
- Hayward, P.C., & Voros, J. (2006). Creating the Experience of Social Change. *Futures*, 38(6), 708-715.
- Hax, A.C. & Wilde, D.L. (1999). The Delta Model: Adaptive Management for a Changing World. *Sloan Management Review*, Winter, 11-28.
- Henley Centre Headlight Vision. (2007). *Anticipating Tomorrow: Shaping the Future of the Irish Food and Drink Market Towards 2020*. Dublin, Ireland: Author.
- Heinzen, B. (1999). Why we get our Forecasts Wrong. Unpublished manuscript. [www.barbaraheinzen.com](http://www.barbaraheinzen.com). Viewed June, 2012.
- Heugens, P., & van Oosterhout, J. (2001). To Go Boldly Where No Man Has Gone Before: integrating Cognitive and Physical Features in Scenario Studies. *Futures*, 33, 861-872.
- Heydinger, R.B. & Zentner, R.D. (1983). Multiple Scenario Analysis: Introducing Uncertainty into the Planning Process. In J. Morrison et al. (Eds) *Applying Methods and Techniques of Futures Research*. San Francisco: Jossey-Bass.
- Hideg, E. (2007). Emergence in the Foresight. *Interdisciplinary Description of Complex Systems*, 4(2), 80-88.
- Hijkamp, P., Rienstra, S., & Vieugel, J. (1997). Long-term Scenarios for Surface Transport. *International Journal of Environment and Pollution*, 7, 305-326.

- Hilhorst, B., & Schütte, P. (2010). Food for Thought: Discovering Common Ground. *Reflections: Journal on Knowledge, Learning, and Change* (Society for Organizational Learning), 10(2), 1-12.
- Hines, A. (2002). A Practitioner's View of the Future of Futures Studies. *Futures*, 34, 37-347.
- Hines, A. (2003). An Audit for Organizational Futurists. *Foresight*, 5(1) 20-33.
- Hines, A. (2006). Strategic Foresight: the State of the Art. *The Futurist*, 40(5), 18-21.
- Hodgkinson, G., & Wright, G. (2002). Confronting Strategic Inertia in a Top Management Team: Learning from Failure. *Organization Studies*, 23(6), 949-977.
- Horton, A. (1999). A Simple Guide to Successful Foresight. *Foresight: The Journal of Futures Studies, Strategic Thinking and Policy*, 1(1) 5-9.
- Huss, W. (1988). A Move Toward Scenario Analysis. *International Journal of Forecasting*, 4, 377-388.
- Huss, W. R. & Honton, E. J. (1987). Scenario Planning—What Style Should You Use? *Long Range Planning*, 20 (4), 21-29.
- Hussey, J., & Hussey, R. (1997). *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*. London, Macmillan.
- Hutzschenreuter, T. & Kleindienst, I. (2006). Strategy-process Research: What Have We Learned and What is Still to be Explored? *Journal of Management*, 32(5) 673-720.
- Ilbury, C. & Sunter, C. (2001). *The Mind of a Fox: Scenario Planning in Action*. Cape Town: Human & Rousseau—Tafelberg.
- Ingvar, D.H. (1985). Memories of the Future: An Essay on the Temporal Organization of Conscious Awareness. *Human Neurobiology*, 4(3), 127-136.
- Inayatullah, S. (1998). Causal Layered Analysis: Poststructuralism as Method. *Futures*, 30(8), 815-829.
- Inayatullah, S. (2000). Tips and Pitfalls of the Futures Studies Trade. *Foresight*, 2(4), 369-74.
- Inayatullah, S. (2002). *Questioning The Future: Futures Studies, Action Learning and Organizational Transformation*. Taipei: Tamkang University Press.
- Inayatullah, S. (Ed). (2004). *The Causal Layered Analysis (CLA) Reader: Theory and Case Studies of an Integrative and Transformative Methodology*. Taipei: Tamkang University Press.

Ivey, J. (2002). Planning for all Possibilities at Shell. *Corporate Finance*, February, 16-19.

James, J. (1996). *Thinking in the Future Tense*. New York: Simon & Schuster.

Janesick, V.J. (1994). The Dance of Qualitative Research Design: Metaphor, Methodolatry, and Meaning. In N. Denzin, & Y. Lincoln (Eds.) *Handbook of Qualitative Research* (pp. 209-219). Thousand Oaks, CA: Sage Publications.

Janesick, V.J. (1998). *Stretching Exercises for Qualitative Researchers*. Thousand Oaks, CA: Sage Publications.

Janesick, V.J. (2001). Intuition and Creativity: A Pas de Deux for Qualitative Researchers. *Qualitative Inquiry*, October, 35-55.

Johansen, B. (2007). *Get There Early: Sensing the Future to Compete in the Present*. San Francisco: Berrett-Koehler.

Jungermann, H., & Thuring, M. (1987). The Use of Mental Models for Generating Scenarios. In G. Wright & P. Ayton (Eds.) *Judgmental Forecasting* (pp. 245-266). Chichester: John Wiley & Sons.

Jungk, R. & Müllert, N. (1987). *Future Workshops: How to Create Desirable Futures*. London: Institute for Social Inventions.

Johns, N., & Lee-Ross, D. (1998). *Research Methods in Service Industry Management*. New York: Cassell.

Kahane, A. (1992). Scenarios for Energy: Sustainable World vs. Global Mercantilism. *Long Range Planning*, 25(4), 38-46.

Kahane, A. (1997). The Mont Fleur Scenarios: What Will South Africa Be Like in 2002? *Deeper News, Global Business Network*, 7(1), 3-24.

Kahane, A. (2000). Changing the Winds. In Slaughter, R. (Ed.), *Gone Today, Here Tomorrow* (pp. 33-40). Sydney: Prospect.

Kahane, A. (2002). Civic Scenarios as a Tool for Social Change. *Strategy and Leadership*, 30(1), 32-37.

Kahane, A. (2004). *Solving Tough Problems: An Open Way of Talking, Listening, and Creating New Realities*. San Francisco: Berrett-Koehler.

Kahane, A. (2010). *Power and Love: A Theory and Practice of Social Change*. San Francisco: Berrett Koehler.

Kahane, A. (2012). Transformative Scenario Planning: Changing the Future by Exploring Alternatives. *Strategy & Leadership*, 40(5), 19-23.



- Kahn, H. (1960). *On Thermonuclear War*. Princeton NJ, Princeton University Press.
- Kahn, H. (1962). *Thinking about the Unthinkable*. New York: Avon Books.
- Kahn, H. (1965). *On Escalation: Metaphors and Scenarios*. San Francisco: Praeger.
- Kahn, H., & Weiner, A.J. (1967). *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years*. New York: Macmillan.
- Kahn, H. (1979). *World Economic Development: 1979 and Beyond*. Boulder, CO: Westview Press.
- Kakabadse, A., Nortier, F., & Abramovici, N. (1998). *Success in Sight: Visioning*. London: Thomson Business Press.
- Kaskinen, J., Fox, R., & Rowntree, K. (2012). Futures Studies for the Southern African Region: 'From Africa' not 'On Africa'. *3rd International SANORD Symposium*, Aarhus University, Denmark.
- Kassler, P. (1995). Scenarios for World Energy. *Long Range Planning* 28, 38-47.
- Keenan M., & Popper, R. (2008). Comparing Foresight "Style" in Six World Regions. *Foresight*, 10(6), 16-38.
- Kelly, E., & Leyden, P. (2002). *What's Next? Exploring the New Terrain for Business*. Emeryville CA: Global Business Network.
- Kelly, E. (2005). *Powerful Times: Rising to the Challenge of Our Uncertain World*. Emeryville, CA: Global Business Network.
- Khakee, A. (1991). Scenario Construction for Urban Planning. *International Journal of Management Science*, 19(5), 459-469.
- Khakee, A. (1999). Participatory Scenarios for Sustainable Development. *Foresight*, 1(3), 229-240.
- King, N. (1994). The Qualitative Research Interview. In G. Symon & C. Cassell (Eds.) *Qualitative Methods in Organizational Research*, (pp. 14-36). London: Sage Publications.
- Kippenberger, T. (1999). Pitfalls in Scenario Planning. *The Antidote (Strategy & Leadership)*, 4(4), 32-33.
- Klein, H.E., & Linneman, R.E. (1981). The Use of Scenarios in Corporate Planning: Eight Case Histories. *Long Range Planning*, 14(5), 69-77.
- Kleiner, A. (1993). The End of the Official Future: Why Pacific Gas and Electric Isn't Building Any More Nuclear Power Plants. *Garbage*, March/April.

- Kleiner, A. (1996). *The Age of Heretics: Heroes, Outlaws, and the Forerunners of Corporate Change*. New York: Doubleday Currency.
- Kleiner, A. (2003). The Man Who Saw the Future. *Strategy + Business* (Booz Allen Hamilton), Spring. <http://www.well.com/~art/sbspr2003cc.html>. Viewed February 2011.
- Kleiner, A., (2011). How to Balance Power and Love. *Strategy+Business* (Booz Allen Hamilton), Spring. <http://www.strategy-business.com/article/00066?gko=521f0>. Viewed September 2012.
- Kleining, G. & Witt, H. (2001). Discovery as Basic Methodology of Qualitative and Quantitative Research. *Qualitative Social Research*, 2(1). <http://www.qualitative-research.net/fqs-texte/1-01/1-01kleiningwitt-e.htm>. Viewed April 2012.
- Knights, D. (1992). Changing Spaces: The Disruptive Impact of a New Epistemological Location for the Study of Management. *Academy of Management Review*, 17(3), 514-536.
- Kok, K., Biggs, R., & Zurek, M. (2007). Methods for Developing Multiscale Participatory Scenarios: Insights from Southern Africa and Europe. *Ecology and Society*, 12(1), 17-26.
- Kok, K., Patel, M., Rothman, D.S., & Quaranta, G. (2006). Multiscale Narratives from an IA Perspective, Part II: Participatory Local Scenario Development. *Futures*, 38, 285-311.
- Kotter, J. (1996). *Leading Change*. Boston: Harvard Business School Press.
- Kouzes, J.M., & Posner, B.Z. (1991) *The Leadership Challenge: How to Get Extraordinary Things Done in Organizations*. San Francisco: Jossey-Bass.
- Kuhn, K., & Snizek, J. (1996). Confidence and Uncertainty in Judgemental Forecasting: Differential Effects of Scenario Presentation. *Journal of Behavioural Decision Making*, 9, 231-247.
- Kuzel, A.J. (1999). Sampling in Qualitative Inquiry. In B. F. Crabtree and W. L. Miller (Eds.) *Doing Qualitative Research* (pp. 33-45). Thousand Oaks, CA: Sage Publications.
- Kvale, S. (1996). *Interviews: An Introduction to Qualitative Research Interviewing*. Thousand Oaks, CA: Sage Publications.
- Lane, D., & Maxfield, R. (1996). Strategy under Complexity: Fostering Generative Relationships. *Long Range Planning*, 29(2), 215-31.
- Leedy, P.D., & Ormrod, J.E. (2009). *Practical Research: Planning and Design* (9th Ed.). Boston: Pearson-Prentice Hall.
- Leemhuis, J.P. (1985). Using Scenarios to Develop Strategies. *Long Range Planning*, 18, 30-37.

- Lempert, R et al. (2004). Characterizing Climate Change Uncertainties for Decision Makers. *Climatic Change*, 65, 1–9.
- Le Roux, P. (1997). The Mont Fleur Scenarios. *Deeper News (Emeryville, CA: Global Business Network)*, 7(1).
- Li, X., Ang, C., & Gay, R. (1997). An Intelligent Scenario Generator for Strategic Business Planning. *Computers in Industry*, 34, 261-269.
- Liedtka, J.M. (1998). Linking Strategic Thinking with Strategic Planning. *Strategy and Leadership*, 26(4), 30–35.
- Light, R.J., Singer, J.D., & Willett, J.B. (1990). *By Design: Planning Research on Higher Education*. Cambridge: Harvard University Press.
- Liotta, P.H. & Somes, T.E. (2003). The Art of Reperceiving: Scenarios and the Future. *Naval War College Review*, LVI(4), 383-393.
- Lindgren, M. (2003). *Scenario Planning: The Link between Future & Strategy*. New York: Palgrave Macmillan.
- Linneman, R.E., & Klein, H.E. (1979). The Use of Multiple Scenarios by US Industrial Companies. *Long Range Planning*, 12(1), 83-90.
- Lombardo, T. (2006). *Contemporary Futurist Thought: Science Fiction, Future Studies, and Theories and Visions of the Future in the Last Century*. Bloomington, IN: AuthorHouse.
- Lorenzoni, I., Jordan, A., Hulme, M., Turner, K., & O'Riordan, T. (2000). A Co-evolutionary Approach to Climate Change Impact Assessment, Part 1: Integrating Socio-economic and Climate Change Scenarios. *Global Environmental Change*, 10, 57-68.
- Mackay, R.B., & McKiernan, P. (2004). The role of Hindsight in Foresight: Refining Strategic Reasoning. *Futures*, 36(2), 161-79.
- MacNulty, C.A.R. (1977). Scenario Development for Corporate Planning. *Futures*, 9(2), 128-138.
- MacPherson, I., Brooker, R. & Ainsworth, P. (2000). The Case Study in the Contemporary World of Research: Using Notions of Purpose, Place, Process and Product to Develop some Principles for Practice. *International Journal of Social Research Methodology*, 3(1), 49-61.
- Maitlis, S. (2005). The Social Processes of Organizational Sensemaking. *Academy of Management Journal*, 48(1), 21-49.
- Makradakis, S. & Taleb, N. (Eds). (2009). What to Do in an Environment of Low Predictability. *The International Journal of Forecasting*, 29, 716–733.

- Major, E., Asch, D., & Cordey-Hayes, M. (2001). Foresight as a Core Competence. *Futures*, 33(2), 91-107.
- Mandel, T.F. & Wilson, I. (1993). How Companies Use Scenarios: Practices and Prescriptions. SRI International Report No. 822. SRI International: Author.
- Mante-Meijer, E., van der Duin, P., & Abeln, M. (1998). Fun with Scenarios. *Long Range Planning*, (31), 628-637.
- Mannermaa, M., Dator, J., & Tiihonen, P. (Eds.). (2006). *Democracy and Futures*. Helsinki: Parliament of Finland, Committee for the Future.
- Marien, M. & Jennings, L. (Eds.). (1987). *What I Have Learned: Thinking About the Future Then and Now*. New York: Greenwood.
- Markley, O.W. (1988). Using Depth Intuition in Creative Problem Solving and Strategic Innovation. *The Journal of Creative Behavior*, 22(2), 65-100.
- Markley, O.W., & Wygant, A. (1988). *Information and the Future: A Handbook of Sources and Strategies*. New York: Greenwood Press.
- Markley, O.W. (1998). Visionary Futures: Guided Cognitive Imagery in Teaching and Learning About the Future. *American Behavioral Scientist*, 42(3), 522-530.
- Markley, O.W. (2007). Mental Time Travel: A Practical Business and Personal Research Tool for Looking Ahead. *Journal of Futures*. doi: 10.1016/j.futures.2007.06.006.  
<http://www.inwardboundvisioning.com/Docs/MentalTimeTravel.htm>
- Markley, O.W. (2012). Imaginal Visioning for Prophetic Foresight. *Journal of Futures Studies*, 17(1), 5-24.
- Marsh, N., McCallum, M., & Purcell, D. (2002). Strategic Foresight: The Power of Standing in the Future. Melbourne: Crown Content.
- Marshall, C. & Rossman, G.B. (1995). *Designing Qualitative Research*. Thousand Oaks, CA: Sage Publications.
- Martelli, A. (2001). Scenario Building and Scenario Planning: State of the Art and Prospects of Evolution. *Futures Research Quarterly*, 17(2), 61-63.
- Martino, J.P. (1993). *Technological Forecasting for Decision Making*. New York: McGraw-Hill.
- Masini, E.B. (1993). *Why Futures Studies?* London: Grey Seal Books.
- Masini, E.B. & Vasquez, J. M. (2000). Scenarios as seen from a Human and Social Perspective. *Technological Forecasting and Social Change*, 65(1), 49-66.

- Mason, D. (1994). Scenario-based Planning: Decision Model for the Learning Organisation, *Planning Review*, 22(2) 2-11.
- Mason, D. (2003). Tailoring Scenario Planning to the Company Culture. *Strategy & Leadership*, 31(2), 25-28.
- Maxwell, J. A. (1992). Understanding and Validity in Qualitative Research. *Harvard Educational Review*, 63(3), 279-300.
- McAllister, J.W. (1996). The Evidential Significance of Thought Experiment in Science. *Studies in History and Philosophy of Science*, 27(2), 233-250.
- Mcdermott, W.B. (1996). Foresight is an Illusion. *Long Range Planning*, 29(2), 190-194.
- McCorduck, P., & Ramsey, N. (1996). *The Futures of Women: Scenarios for the 21st Century*. New York: Addison Wesley.
- Mercer, D. (1995). Scenarios Made Easy. *Long Range Planning*, 28, 81-86.
- Mercer, D. (1996). The Foreseeable Future. *Management Decision*, 34(3), 55-61.
- Mercer, D., & Wilter, A. (2002). Removing the Ear of Uncertainty from the Future: Theory and Practice. *Foresight: The Journal of Futures Studies, Strategic Thinking and Policy*, 4(5), 38-45.
- Metropolitan Life Foundation. (2009a). *Live the Future: HIV and AIDS Scenarios for South Africa 2005-2025 – Project Overview*. Cape Town: Author.
- Metropolitan Life Foundation. (2009b). *Live the Future: HIV and AIDS Scenarios for South Africa 2005-2025: Respond to the Challenge*. Cape Town: Author.
- Michael, D.N. (1997). *Learning to Plan and Planning to Learn* (2nd ed.). Alexandria, VA: Miles River Press.
- Miles, M., & Huberman, A. M. (1984). *Qualitative Data Analysis*. Beverly Hills, CA: Sage Publications.
- Miles, I. (1981). Scenario Analysis: Identifying Ideologies and Issues. In UNESCO: *Methods for Development Planning*. UNESCO: Author.
- Miles, M.B. (1983). Qualitative Data as an Attractive Nuisance. In van Maanen, J. (Ed.) *Qualitative Research* (pp. 117-134). Thousand Oaks, CA: Sage Publications.
- Millett, S.M. (1988). How Scenarios Trigger Strategic Thinking. *Long Range Planning*, 21, 61-68.
- Millett, S.M. (1992a). Los Angeles 2007: Implications of a Scenario Analysis for Energy Forecasting. *Planning Review*, 20(3), 38-40.

- Millett, S.M. (1992b). Battelle's Scenario Analysis of a European High-Tech Market. *The Planning Forum*, 20(2), 20-23.
- Millett, S.M. (2003). The Future of Scenarios: Challenges and Opportunities. *Strategy & Leadership*, 31(2), 16-24.
- Millett, S.M. (2011). *Managing the Future: A Guide to Forecasting and Strategic Planning in the 21<sup>st</sup> Century*. Devon: Triarchy Press.
- Mingers, J. (2000). The Contribution of Critical Realism as an Underpinning Philosophy for OR/MS and Systems. *Journal of the Operational Research Society*, 51, 1256-1270.
- Mintzberg, H. (1994a). The Rise and Fall of Strategy Planning. London: Prentice Hall.
- Mintzberg, H. (1994b). The Fall and Rise of Strategic Planning. *Harvard Business Review*, 72(1), 107-114.
- Mintzberg, H. (1994c). That's not Turbulence Chicken Little, That's Really Opportunity. *Planning Review*, 22, 7-9.
- Mintzberg, H. & Lampel, J. (1999). Reflecting on the Strategy Process. *Sloan Management Review*, Spring, 21-30.
- Modis, T. (1998). *Conquering Uncertainty: Understanding Corporate Cycles and Positioning Your Company to Survive the Changing Environment*. New York: McGraw-Hill.
- Molitor, G. (2009). Scenarios-Worth the Effort? *Journal of Futures Studies*, 13(3): 81-92.
- Morrison, J.L., & Wilson, I. (1997). Analyzing Environments and Developing Scenarios in Uncertain Times. In M. W. Peterson, D. D. Dill, L. A. Mets, & Associates (Eds.) *Planning and Management for a Changing Environment* (pp. 204-229). San Francisco: Jossey-Bass.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. A. (2002). Verification Strategies for Establishing Reliability and Validity in Qualitative Research. *International Journal of Qualitative Methods*, 1(2), 1-19.
- Moyer, K. (1996). Scenario Planning at British Airways: A Case Study. *Long Range Planning*, 29(2), 172-181. doi: 10.1016/0024-6301(96)00005-2
- Nanus, B. (1989). *The Leader's Edge: The Seven Keys to Leadership in a Turbulent World*. Chicago: Contemporary Books.
- Nanus, B. (1992). *Visionary Leadership*. New York: Jossey-Bass.
- Nanus, B. (1995). *The Vision Retreat: A Facilitator's Guide*. New York: Jossey-Bass.

Nautilus Institute. (2003). *A Korean Krakatoa? Scenarios for the Peaceful Resolution of the North Korean Nuclear Crisis*. Berkeley CA, USA: Author.

Navarro, J., Hayward, P.C., & Voros, J. (2008). How to Solve a Wicked Problem? Furniture Foresight Case Study. *Foresight*, 10, 11-29.

Neuhaus, C. (2001). Futures Research at DaimlerChrysler: Stocking up with Plans and Visions. *Futures Research Quarterly*, 17, 43-52.

Neustadt, R., & May, E. (1986). *Thinking in Time: The Uses of History for Decisionmakers*. New York: Free Press.

Neville Freeman Agency. (2009). *The Bookends Scenarios: Alternative Futures for the Public Library Network in NSW in 2030*. Sydney, Australia: Author.

Non-Zero-Sum Development. (2009). *Three Biotechnology-Related Scenarios for the Eastern Cape*. Pretoria, South Africa: Author.

O'Connor, S., & Au, L. (2009). Steering a Future Through Scenarios: Into the Academic Library of the Future. *The Journal of Academic Librarianship*, 35(1), 57-64.

Oner, A., & Saritas, O. (2005). A Systems Approach to Policy Analysis and Development Planning. *Technological Forecasting and Social Change*, 72(7), 886-911.

Ogilvy, J. (1992). Future Studies and the Human Sciences: The Case for Normative Scenarios. *Futures Research Quarterly*, 8(2), 5-65.

Ogilvy, J. (1996). Scenario Planning as the Fulfillment of Critical Theory. *Futures Research Quarterly*, 12(2), 5-33.

Ogilvy, J. (1996). Futures Studies and the Human Sciences: The Case for Normative Scenarios. In Slaughter, R. (Ed.) *New Thinking for a New Millennium* (pp. 26-83). London: Routledge.

Ogilvy, J. (2001). Scenario Planning, Critical Theory and the Role of Hope. In R.A. Slaughter (Ed.), *The Knowledge Base of Futures Studies*, 1(1). Indooroopilly, Queensland: Futures Study Centre.

Ogilvy, J. (2002). *Creating Better Futures: Scenario Planning as a Tool for a Better Tomorrow*. Oxford: Oxford University Press.

Ogilvy, J. et al. (2000). *China's Futures: Scenarios for the World's Fastest Growing Economy, Ecology, and Society*. San Francisco: Jossey-Bass.

Ogilvy, J., & Smith, E. (2004). Mapping Public and Private Scenario Planning: Lessons from Regional Projects. *Development*, 47(4), 67-72.

- Ogilvy, J. (2011). *Facing The Fold: Essays on Scenario Planning*. Axminster: Triarchy Press.
- Oldfather, P., and West, J. (1994). Qualitative Research as Jazz. *Educational Researcher: American Educational Research Association*, 23(8), 22-26.
- Parson, E. (1995). Integrated Assessment and Environmental Policy Making: In Pursuit of Usefulness. *Energy Policy*, 23, 463-475.
- Passig, D. (2004). Future-Time-Span as a Cognitive Skill. *Futures Research Quarterly*, 2, 27-47.
- Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods*, 2nd edition. Newbury Park, California: Sage Publications.
- Perakyla, A. (1997). Reliability and Validity in Research Based on Transcripts. In Silverman, D. (Ed.), *Qualitative Research: Theory, Method and Practice* (201-220). London: Sage Publications.
- Perrottet, C. M. (1996). Scenarios for the Future. *Management Review*, 85, 43-46.
- Peters, G. (1996). *Beyond the Next Wave: Imagining the Next Generation of Customers*. London: Pitman Publishing.
- Petersen, J. W. (2001). Applying Scenario-based Planning at the Edge of Chaos: One Perspective on an Attempt to Recalibrate "the Blinded". *Futures Research Quarterly*, 17(3), 13-26.
- Phelps, R., Chan, C., & Kapsalis, S. C. (2001). Does Scenario Planning Affect Performance? Two Exploratory Studies. *Journal of Business Research*, 51(3), 223-232.
- Polak, F. (1973). *The Image of the Future*. (Translated and abridged by Elise Boulding) Amsterdam: Elsevier.
- Poland, B. D. (2001). Transcription Quality. In Gubrium, J. F. (Ed.) *Handbook of Interview Research* (pp. 629-649). Thousand Oaks, California: Sage Publications.
- Pope, C., Ziebland, S., & Mays N. (2000). Qualitative Research in Health Care: Analysing Qualitative Data. *BMJ Clinical Research*, 320(7227): 114-116. doi: 10.1136/bmj.320.7227.114
- Postma, T., & Liebl, F. (2005). How to Improve Scenario Analysis as a Strategic Management Tool? *Technological Forecasting & Social Change*, 72: 161-173.
- Prior, L. (1997). Following in Foucault's Footsteps: Text and Context in Qualitative Research', in Silverman, D. (Ed.) *Qualitative Research: Theory, Method And Practice*, (pp. 63-79). London: Sage Publications.



Quinn, L. L., & Mason, D. H. (1994). How Digital Uses Scenarios to Rethink the Present. *Planning Review*, 22(6), 14-17.

Ramirez, R., Selsky, J., & van der Heijden, K. (Eds.). (2008). *Business Planning for Turbulent Times: New Methods for Applying Scenarios*. London: Earthscan.

Ramirez, R. (2008). Scenarios that Provide Clarity in Addressing Turbulence, in R. Ramirez, J. Selsky, & K. van der Heijden (Eds.) *Business Planning for Turbulent Times: New Methods for Applying Scenarios* (pp. 187-206). London: Earthscan.

Raimond, P. (1996). Two Styles of Foresight: are we Predicting the Future or Inventing it? *Long Range Planning*, 29(2), 208-214.

Rapley, T.J. (2001). The Art(fullness) of Open-ended Interviewing: Some Considerations on Analysing Interviews. *Qualitative Research*, 1(3), 303-323.

Rappert, B. (1999). Rationalising the Future? Foresight in Science and Technology Policy Co-ordination. *Futures*, 31(6), 527-545.

Raskin, P., et al. (2002). *Great Transition: The Promise and Lure of the Times Ahead*. Stockholm: Stockholm Environment Institute

Ratcliffe, J. (2002). Scenario Planning: Strategic Interviews and Conversations. *Foresight: The Journal of Futures Studies, Strategic Thinking and Policy*, 4(1), 19-30.

Ratcliffe, J. (2003). Scenario Planning: An Evaluation of Practice. *Futures Research Quarterly*, 19(4) 5-25.

Rescher, N. (1998). *Predicting the Future: An Introduction to the Theory of Forecasting*. Albany: SUNY Press.

Rittel, H., & Webber, M. (1973). Dilemmas in a General Theory of Planning. *Policy Sciences*, 4, 155-169.

Robinson, J. (1990). Futures under Glass: a Recipe for People who Hate to Predict. *Futures*, 22(8), 820-823.

Rockfellow, J.D. (1994). Wild Cards: Preparing for the Big One. *Futurist* 28(1), 14-19.

Rohrbeck, R. (2010). *Corporate Foresight: Towards a Maturity Model for the Future Orientation of a Firm*. Heidelberg: Physica-Verlag.

Rosell, S.A. (1995). *Changing Maps: Governing in a World of Rapid Change*. Ottawa: Carleton University Press.

Roxburgh, C. (2009). The Use and Abuse of Scenarios, *McKinsey Quarterly*, November, 1-10.

- Sapio, B. (1995). SEARCH (Scenario Evaluation and Analysis through Repeated Cross-impact Handling): a New Method for Scenario Analysis with an Application to the Videotel Service in Italy. *International Journal of Forecasting*, 11, 113-131.
- Saffo, P. (2007). Six Rules for Effective Forecasting, *Harvard Business Review*, 4, 1-9.
- Salo, A., & Cuhls, K. (2003). Technology Foresight: Past and Future. *Journal of Forecasting*, 22(2-3), 79-82.
- Samuel, L. (2009). *Future: A Recent History*. Austin: University of Texas Press.
- Sarantakos, S. (1998). *Social Research* (2nd Ed.) Hampshire: Palgrave Macmillan.
- Saritas, O., & Aylen, J. (2010). Using Scenarios for Roadmapping: The Case of Clean Production. *Technological Forecasting and Social Change*, 77, 1061-1075.
- Searce, D., & Fulton, K. (2004). *What If ? The Art of Scenario Thinking for Nonprofits*. Emeryville, CA: Global Business Network.
- Schnaars, S. (1986). How to Develop Business Strategies from Multiple Scenarios. In W.D. Guth (Ed.) *Handbook of Business Strategy*. Boston: Warren, Gosham & Lamont.
- Schnaars, S. (1987). How to Develop and Use Scenarios . *Long Range Planning*, 20, 105-114.
- Schnaars, S. (1989). *Megamistakes: Forecasting and The Myth of Rapid Technological Change*. New York: The Free Press.
- Schoemaker, P. (1992). How to Link Strategic Vision to Core Capabilities. *Sloan Management Review*, 34, 67-81.
- Schoemaker, P. & van der Heijden, K. (1992). Integrating Scenarios into Strategic Planning at Royal Dutch Shell. *Planning Review*, 20(3), 41-46.
- Schoemaker, P. (1993). Multiple Scenario Development: Its Conceptual and Behavioral Foundation. *Strategic Management Journal*, 14, 193-213.
- Schoemaker, P. (1995). Scenario Planning: A Tool for Strategic Thinking. *Sloan Management Review*, Winter, 25-40.
- Schoemaker, P. (1998). Twenty Common Pitfalls in Scenario Planning. In Fahey, L. and Randall, R. M. (Eds.) *Learning From The Future: Competitive Foresight Scenarios* (pp. 422-431). New York: John Wiley & Sons.
- Schoemaker, P. (2002). *Profiting from Uncertainty: Strategies for Succeeding No Matter What the Future Brings*. New York: The Free Press.
- Schriefer, A. (1995). Getting the Most Out of Scenarios: Advice from the Experts. *Planning Review*, September/October, 33-35.

- Schultz, W. (1993). Scenario Building: the Manoa Approach. Retrieved from: <http://www.infinitefutures.com/tools/sbmanoa.shtml>. Viewed January 2012.
- Schultz, W. (2001). Scenario Archetypes. Retrieved from: <http://www.infinitefutures.com/essays/prez/scenarch/sld001.htm>. Viewed January 2012.
- Schwartz, P. (1991). *The Art of Long View. Planning for the Future in an Uncertain World*. New York: Currency/Doubleday.
- Schwartz, P. (1992). Composing a Plot for Your Scenario. *Planning Review*, 20, 4-8.
- Schwartz, P., & Ogilvy, J. (1998). Plotting your Scenarios. In Fahey, L. and Randall, R. M. (Eds.) *Learning From The Future: Competitive Foresight Scenarios* (pp. 57-80). New York: John Wiley & Sons.
- Schwartz, P. (2001). The Official Future, Self-Delusion and the Value of Scenarios. In Pickford, J. (Ed.) *Mastering Risk, Volume 1: Concepts* (pp. 42-46). London: Financial Times and Prentice.
- Schwartz, P. (2003). *Inevitable Surprises. Thinking Ahead in a Time of Turbulence*. London: The Free Press.
- Schwartz, P. (2005). The World Disorder. *Wired. Scenarios Special Edition*. October, 104-105.
- Scott, A. (2001). Scenario and Strategy Planning, Corporate Culture and Leadership. *Scenario and Strategy Planning*, October/November.
- Scriven, M. (1967). The Methodology of Evaluation. In R. E. Stake (Ed.), *Perspectives of Curriculum Evaluation* (pp. 39-55). Chicago: Rand McNally.
- Scriven, M. (1991). Prose and Cons about Goal-Free Evaluation. *American Journal of Evaluation*, 12(1), 55-62. doi: 10.1177/109821409101200108
- Segal, N. (2007). *Breaking the Mould: The Role of Scenarios in Shaping South Africa's Future*. Stellenbosch: Sun Press.
- Senge, P. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Currency/Doubleday.
- Senge P., Roberts, C., Ross, R., Smith, B., & Kleiner, A. (1994). *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*. New York: Currency/Doubleday.
- Senge, P. (1996). Through the Eye of the Needle. In R. Gibson (Ed.) *Rethinking The Future* (pp. 122-146). London: Nicholas Brealey Publishing.

Sharpe, B., & v.d. Heijden, K. (Eds.). (2007). *Scenarios for Success: Turning Insights into Action*. Chichester: Wiley.

Shaw, G., Brown, R., & Bromley, P. (1998). Strategic Stories: How 3M is Rewriting Business Planning. *Harvard Business Review*, May, 41-50.

Sherden, W. (1997). *The Fortune Sellers, The Big Business of Selling and Buying Predictions*. New York: John Wiley & Sons.

Shell International, Global Business Environment (2003). *Scenarios: An Explorer's Guide*. London: Author.

Silverman, D. (1993). *Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction*. London: Sage Publications.

Simpson, D. (1992). Key Lessons for Adopting Scenario Planning in Diversified Companies. *Planning Review*, 20(3), 10-17.

Slaughter, R. A. (1995). *The Foresight Principle: Cultural Recovery in the 21st Century*. Westport, CT: Praeger.

Slaughter, R. A. (1996a). Future Studies: from Individual to Social Capacity. *Futures*, 28(8), 751-762.

Slaughter, R. A. (1996b). Foresight beyond Strategy: Social Initiatives by Business and Government. *Long Range Planning*, 29(2), 156-163.

Slaughter, R. A. (1997). A Foresight Strategy for Future Generations. *Futures*, 29(8), 723-730.

Slaughter, R. A. (1999). *Futures for the Third Millennium: Enabling the Forward View*. Sydney: Prospect.

Slaughter, R. (Ed.). (2000a). *The Knowledge Base of Futures Studies*. (4 vols. CD-ROM). Indooroopilly, Queensland, Australia: Futures Study Centre. (Volume 4 edited by Sohail Inayatullah.)

Slaughter, R. A. (2000b). Futures Concepts. In R.A. Slaughter (Ed.), *The Knowledge Base of Futures Studies*, 1(1). Indooroopilly, Queensland: Futures Study Centre.

Slaughter, R. A. (2002). From Forecasting and Scenarios to Social Construction: Changing Methodological Paradigms in Futures Studies. *Foresight*, 4(3), 26-31.

Slaughter, R. A. (2004). *Futures Beyond Dystopia: Creating Social Foresight*. London: Routledge.

Soontornrangson, W., Evans, D. G., Fuller, R. J., & Stewart, D.F. (2003). Scenario Planning for Electricity Supply. *Energy Policy*, 31, 1647-1659.

- Snowden, D. (1999). The Paradox of Story: Simplicity and Complexity in Strategy. *Scenario and Strategy Planning*, 1(5), 16-20.
- Steffy, B.D., & Grimes, A.J. (1986). A Critical Theory of Organization Science. *Academy of Management Review*, 11(2), 322-336.
- Stokke, P.R., Ralston, W.K., Boyce, T.A., & Wilson, I.H. (1990). Scenario Planning for Norwegian Oil and Gas. *Long Range Planning*, 23(2), 17-26.
- Stokke, P.R., Boyce, T.A., Ralston, W.K., & Wilson, I.H. (1991). Visioning (and Preparing for) the Future: The Introduction of Scenarios-Based Planning into Statoil. *Technological Forecasting and Social Change*, 40, 73-86.
- Stowell, S. & Mead, S. (2005). Ahead of the Curve: A Guide to Applied Strategic Thinking. Sandy, UT: CMOE Press.
- Strauss, A. & Corbin, J. (1998). Grounded Theory Methodology: an Overview. In N. K. Denzin & Y.S. Lincoln (Eds.) *Strategies Of Qualitative Enquiry* (pp. 158-182). Thousand Oaks, CA: Sage Publications.
- Sunter, C. (1987). *The World and South Africa in the 1990s*. Cape Town: Human & Rousseau-Tafelberg.
- Sunter, C. (1992). *The New Century: Quest for the High Road*. Cape Town: Human & Rousseau-Tafelberg.
- Sunter, C. (1992). Reperceiving the Future Though the Lens of the Past. (Video). *Planning Forum International Strategic Management Conf.*, New Orleans, May 6.
- Sull, D. (2005). Strategy as Active Waiting. *Harvard Business Review*, September-October, 1-10.
- Symon, G. & Cassell, C. (1998). Reflections on the Use of Qualitative Methods. In G. Symon & C. Cassell (Eds.) *Qualitative Methods and Analysis in Organizational Research* (pp. 1-9). London: Sage Publications.
- Taleb, N. N. (2001). *Fooled by Randomness*. London: Texere.
- Taleb, N. N. (2007). *The Black Swan*. New York: Random House.
- Taleb, N.N., Goldstein, D.G., & Spitznagel, M.W. (2009). The Six Mistakes Executives Make in Risk Management. *Harvard Business Review*, October, 1-4.
- Taylor, C. W. (1990). *Alternative World Scenarios for Strategic Planning*. Carlisle Barracks, PA: U.S. Army War College, Strategic Studies Institute.
- Tenaglia, M., & Noonan, P. (1992). Scenario-Based Strategic Planning: A Process for Building Top Management Consensus. *Planning Review*, 20(3), 12-19.

- Tenner, E. (1996). *Why Things Bite Back: Technology and the Revenge of Unintended Consequences*. New York: Knopf.
- Tessmer, M. (1993). *Planning and Conducting Formative Evaluation*. London: Kogan Page.
- Thomas, C. W. (1998). Scenario-based Planning for Technology Investments. In L. Fahey & R.M. Randall (Eds.) *Learning from the Future* (pp. 246-263). New York: John Wiley & Sons.
- Tibbs, H. (1998). A tribute to Pierre Wack. *Netview*, Global Business Network, 9(1) 5-10. Retrieved from: [http://www.hardintibbs.com/wp-content/uploads/2009/05/gbn\\_tribute\\_wack.pdf](http://www.hardintibbs.com/wp-content/uploads/2009/05/gbn_tribute_wack.pdf). Retrieved April 11, 2012.
- Tibbs, H. (2000). Global Scenarios for the Millennium. In Slaughter, R. (Ed.), *Gone Today, Here Tomorrow* (pp. 333-41). Sydney: Prospect.
- Tough, A. (2000). Knowledge for our Future: Seven Priorities. In R.A. Slaughter (Ed.), *The Knowledge Base of Futures Studies*, 1(4). Indooroopilly, Queensland: Futures Study Centre.
- Toth, F. (1988). Policy Exercises. *Simulation and Games*, 19, 235-276.
- Tsoukas, H., & Shepherd, J. (2004a). Coping with the Future: Developing Organizational Foresightfulness. *Futures*, 36(2), 137-44.
- Tsoukas, H., & Shepherd, J. (2004b). Introduction: Organizations and the Future, From Forecasting to Foresight. In H. Tsoukas & J. Shepherd (Eds.) *Managing the Future: Foresight in the Knowledge Economy* (pp. 1-17) Oxford: Blackwell.
- Uotila, T., Melkas, H., & Harmaakorpi, V. (2005). Incorporating Futures Research into Regional Knowledge Creation and Management. *Futures*, 37(8), 849-866.
- Van der Heijden, K. (1997). Scenarios, Strategy and the Strategy Process. *Presearch (Global Business Network)*, 1(1), 1-32.
- Van der Heijden, K. (2000). Scenarios and Forecasting: Two Perspectives. *Technological Forecasting and Social Change*, 65, 31-36.
- Van der Heijden, K., Bradfield, R., Burt, G., Cairns, G., & Wright, G. (2002). *The Sixth Sense: Accelerating Organizational Learning with Scenarios*. Chichester: Wiley & Sons.
- Van der Heijden, K. & Schutte, P. (2002). Key questions for Designing Scenario Applications. *Scenario and Strategy Planning*. 1(6).
- Van der Heijden, K. (2004). Afterword: Insights into Foresight. In H. Tsoukas & J. Shepherd (Eds.) *Managing the Future: Foresight in the Knowledge Economy* (pp. 204-211). Oxford: Blackwell.

- Van der Heijden, K. (2005). *Scenarios: The Art of Strategic Conversation*. New York: John Wiley & Sons.
- Van Maanen, J. (1988). *Tales of the Field: On Writing Ethnography*. Chicago: University of Chicago Press.
- Van Maanen, J. (Ed). (1998). *Qualitative Studies of Organizations: The Administrative Science Quarterly Series in Organizational Theory and Behavior*. Thousand Oakes, CA: Sage Publications.
- Van Notten, P. , Rotmans, J., van Asselt, M. & Rothman, D. (2003). An Updated Scenario Typology. *Futures*, 35, 423-443.
- Venable, J., Quing, L, Ginter, P., & Duncan, W.J. (1993). The Use of Scenario Analysis in Local Public Health Departments: Alternative Futures for Strategic Planning. *Public Health Reports*, 108(6), 701-710.
- Verity, J. (2003). Scenario Planning as a Strategy Technique. *European Business Journal*, 15(4), 185-195.
- Voros, J. (2001). Reframing Environmental Scanning: an Integral Approach. *Foresight*, 3(6), 533-552.
- Voros, J. (2003). A Generic Foresight Process Framework. *Foresight*, 5(3), 10-21.
- Wack, P. (1985a). Scenarios: Uncharted Waters Ahead. *Harvard Business Review*, 63(5), 72-79.
- Wack, P. (1985b). Scenarios: Shooting the Rapids. *Harvard Business Review*, 63(6), 139-150.
- Ward, E., & Schriefer, A. (2003). Dynamic Scenarios: Systems Thinking Meets Scenario Planning. In L. Fahey & R. Randall (Eds.) *Learning from the Future* (pp. 140-156). New York: John Wiley & Sons.
- Weiner, E., & Brown, A. (1997). *Insider's Guide to the Future*, New York: Boardroom Books.
- Weiner, E., & Brown, A. (2006). *Future Think*. New York: Prentice Hall
- Weisbord, M., & Janoff, S. (1995). *Future Search: An Action Guide to Finding Common Ground in Organizations and Communities*. San Francisco: Berrett-Koehler.
- Werner, M. (1990). Planning for Uncertain Futures: Building Commitment Through Scenario Planning. *Business Horizons*, 33(3), 55-58.
- Whipple, W. III. (1989). Evaluating Alternative Strategies Using Scenarios. *Long Range Planning*, 22(3), 82-86.

- Wilkinson, L. (1995) How To Build Scenarios. *Wired, Scenarios Special Edition*, October, 74-81.
- Wilkinson, L. & Cowan, J. (1995). *The Logics of Change: The 1995 GBN Scenario Book*. Emeryville, CA: Global Business Network.
- Wilkinson, A., & Eidinow, E. (2008). Evolving Practices in Environmental Scenarios: a New Scenario Typology. *Environmental Research Letters*, 3, 1-11. doi:10.1088/1748-9326/3/4/045017
- Wilkinson, A. (2009). Scenarios Practices: In Search of Theory. *Journal of Futures Studies*, 13(3), 107-114.
- Wilkinson, A. & Ramirez, R. (2010). Canaries in the Mind: Exploring How the Financial Crisis Impacts 21st Century Future-Mindfulness. *Journal of Futures Studies*, 14(3), 45-60.
- Wilson, I. (1978). Scenarios. In J. Fowles (Ed.) *Handbook of Futures Research*. Westport, CT: Greenwood Press.
- Wilson, I. (1992). Teaching Decision Makers to Learn from Scenarios: A Blueprint for Implementation. *Strategy & Leadership*, 20(3), 18-22.
- Wilson, I. (1998a). Mental Maps of the Future: an Intuitive Logics Approach. In L. Fahey & R. Randall (Eds.) *Learning from the Future* (pp. 81-108). New York: Wiley & Sons.
- Wilson, I. (1998b). The Effective Implementation of Scenario Planning: Changing the Corporate Culture. In L. Fahey & R. Randall (Eds.) *Learning from the Future* (pp. 352-368). New York: Wiley & Sons.
- Wilson, I. (2003). *The Subtle Art of Strategy: Organisational Planning in Uncertain Times*. Westport CT: Praeger.
- Winter, G. (2000). A Comparative Discussion of the Notion of 'Validity' in Qualitative and Quantitative Research, *The Qualitative Report*, 4(3-4).
- Wollenberg, E., Edmunds, D., & Buck, L. (2000). Using Scenarios to Make Decisions About the Future: Anticipatory Learning for the Adaptive Co-management of Community Forests. *Landscape and Urban Planning*, 47, 65-77.
- Woodgate, D. & Pethrick, W. (2004). *Futures Frequencies*. Austin, TX: FringeCore.
- World Economic Forum. (2010). *The Future of the Global Financial System A Near-Term Outlook and Long-Term Scenarios*. Lausanne, Switzerland
- Wright, A. D. (2000). Scenario Planning: a Continuous Improvement Approach to Strategy. *Total Quality Management*, 11, (4-6), 433-438.



Wright, G. et al. (2008). Scenario Planning Interventions in Organizations: An Analysis of the Causes of Success and Failure. *Futures* 40, 218–236.

Wright, G., & Cairns, G. (2011). *Scenario Thinking: Practical Approaches to the Future*. New York: Palgrave-Macmillan.

Yin, R. (1981). The Case Study Crisis: Some Answers. *Administrative Science Quarterly*, 26, 58-65.

Yin, R. K. (2009). *Case Study Research: Design and Methods, 4th Edition*. Thousand Oaks, CA: Sage Publications.

Zentner, R.D., & Gelb, B. (1991). Scenarios: A Planning Tool for Health Care Organizations. *Hospital and Health Services Administration*, 36(2), 211-212.

Ziemer, D. R. (1992). A Decision Support System to Aid Scenario Construction for Sizing and Timing of Marketplaces. *Technological Forecasting and Social Change*, 42, 223-249.

\*\*\*\*\*